SFFD MEDICAL PROTOCOLS 2009

CONTENTS

1 INTRODUCTION

This document contains general guidelines and specific protocols developed specifically for the Santa Fe Fire Department (SFFD) as an emergency medical services (EMS) agency. Except as noted, it constitutes written medical control for licensed emergency medical technicians (EMTs) employed by SFFD and functioning in their job capacity as EMS providers under the authority of the SFFD medical director.

EMS is an evolving field. Accordingly, this document will be revised from time to time to help ensure that our patients receive the highest quality of care consistent with current accepted medical standards. These revisions will be made by SFFD EMS management with involvement of SFFD field personnel and the local medical community.

Errors in prehospital care are generally errors of omission. The EMS provider will be proactive in the implementation of these protocols, and should not withhold or delay any indicated intervention. Providers should remember, "First do no harm."

SFFD will provide other EMS agencies with a copy of this document when requested in writing by their medical director. Address requests to Medical Officer, Santa Fe Fire Department, P.O. Box 909, Santa Fe, NM 87504. Because this document is specific to SFFD, other agencies may need to modify it to meet the needs of their own communities.

DISCLAIMER

In developing these protocols, every attempt has been made to reflect sound medical practice based on currently accepted standards for out-of-hospital emergency medicine. Despite our best efforts, this document may contain errors or omissions. Except when male or female gender is specifically intended, this document uses masculine pronouns for convenience; such use is not intended to reflect bias. SFFD EMS personnel are encouraged to forward specific questions to the medical officer and medical director through the departmental chain of command. Activities of EMS personnel must be in compliance with all applicable federal, state, county, and local laws and regulations including PRC Regulation 18 NMAC 4.2 "Ambulance Medical Rescue Services," DOH Regulation 7 NMAC 27.3 "Medical Direction for Emergency Medical Services," and the Federal Controlled Substances Act.

2 ABOUT THE EMS SYSTEM

SANTA FE FIRE DEPARTMENT

SFFD is a certificated ambulance service as recognized by the New Mexico Public Regulatory Commission. All SFFD field personnel are New Mexico licensed EMTs, and all SFFD ambulances are ALS-level transport-capable units staffed by at least one EMT-Paramedic and one EMT-Basic or EMT-Intermediate. SFFD is the primary EMS agency for the City of Santa Fe, and cooperates in a mutual-aid agreement with Santa Fe County Fire Department and other agencies in the region. SFFD personnel may attend patients being transported in Santa Fe County Fire Department ambulances, as needed, at their discretion.

SFFD EMS management: Fire Chief, Barbara Salas. Assistant Chief for Field Services, Erik Litzenberg. Medical Officer, Brian Caldwell. Medical Training Officer, David Huckabee. Medical Director, Nate Unkefer, MD.

NONDISCRIMINATION

Every patient will be afforded the best possible care, in accordance with these protocols and the best judgment of SFFD EMS personnel, without regard to age, sex, lifestyle, mental status, national origin, religion, creed, color, race, diagnosis or prognosis, complaint, or ability to pay for services rendered. There is a zero-tolerance policy for discrimination based on any of these factors.

PATIENT ADVOCACY

The patient's concerns and requests must be heard and should be honored. The patient deserves to be fully informed about his condition and care, including potential outcomes and complications. Competent adults have a right to accept or refuse recommended treatment and/or transport.

Immediate family should be considered an extension of the patient. Whenever possible, family members should be informed, included, encouraged to remain with the patient during transport, and supported in their role as patient advocates.

INTERPERSONAL CONFLICTS AT THE SCENE

Any disagreements or conflicts among EMS personnel at a scene should be discussed after the call in a private setting. Try to resolve conflicts at the lowest possible level, preferably via face-to-face discussion. If a conflict cannot be resolved by the involved parties, request assistance through the departmental chain of command.

Critiques and debriefings can play a valuable role in solving system issues after a call. These should preferably take place within 72 hours after a call and can be set up through the departmental chain of command.

PATIENT CARE RESPONSIBILITY

The dispatched EMS provider with the highest level of licensure on scene will be in charge of patient care. In the event that more than one person works at that level of

licensure, the one first making patient contact will be in charge of patient care. Once the patient is in an ambulance, the most highly trained provider assigned to that unit will take charge of patient care. In no case should a duly dispatched or requested EMS provider at a higher level of licensure be prevented from making patient contact, regardless of patient condition. The presence on scene of other health care providers does not release an EMS service from the staffing requirements outlined by the New Mexico Public Regulatory Commission.

SFFD's rank structure for EMS personnel is as follows: (1) medical director, (2) medical officer, (3) licensed EMT-paramedic, (4) licensed EMT-Intermediate, (5) licensed EMT-Basic.

A law enforcement officer has no authority in patient care or transport decisions unless he elects to take a patient into custody. The officer is then responsible for all actions occurring as a result of his direct orders. Potential liability consequences should be clearly relayed to the officer. If a conflict arises, contact medical control.

DELEGATION OF RESPONSIBILITY

In rare instances, such as a multicasualty incident, an EMT-Paramedic or EMT-Intermediate may delegate a patient's care to an EMT-Basic, if there is no reasonable expectation that the patient will require a higher level of care. The paramedic or intermediate will be held responsible for the appropriateness of the decision. The assessment and delegation should be properly documented.

TRANSFER OF PATIENT CARE

SFFD EMS personnel will stay with the patient and remain responsible for patient care until (1) another EMS provider of equal or higher licensure receives an oral report and assumes responsibility for patient care; (2) patient care is properly transferred to appropriate personnel at the receiving facility, with an oral report; (3) the patient is returned to the originating facility after a round-trip for an outpatient procedure; or (4) the patient is transported on physician order to his residence.

SFFD EMS personnel are solely responsible for unloading the patient from the ambulance. Hospital personnel should stay outside the ambulance unless assistance is requested.

A copy of the written EMS report is to be left with the receiving facility before the crew departs. If pending calls make this impossible, the copy must be delivered within 24 hours.

PATIENT STATUS AND TRANSPORT DECISIONS

The patient's status should be classified according to the following criteria and transport destination decisions made accordingly. Patient status should be included in the radio report to the receiving facility.

Stable: The patient is at no apparent risk of developing a life-threatening or disabling condition. Nonemergency transport is appropriate. The patient will be transported to the facility of his choice in the service area, as long it will not compromise the patient. If the patient is a minor, incompetent, incarcerated, or subject to the guardianship of another, the facility will be chosen by the responsible party, or by online

medical control if the responsible party is unavailable. Contact medical control if the responsible party's choice is not believed to be in the patient's best interest.

Serious: The patient is at moderate risk of developing a life-threatening or disabling condition. Most circumstances will merit nonemergency transport. The patient will be transported to the closest appropriate facility in the service area.

Critical: The patient has an acute life-threatening or disabling condition requiring immediate intervention. Emergency transport may be made at the EMS provider's discretion. Examples include trauma to chest and/or abdomen with unstable vital signs, or vital signs suggesting that the patient is likely to deteriorate.

MEDICAL CONTROL EMERGENCY PHYSICIAN CONSULT

EMS personnel should consult by radio or telephone with a medical control emergency physician (MCEP) for patients that they feel might merit the immediate physician attention at the receiving facility. When such a consult is requested, the EMS provider should make a direct report to the physician as soon as possible after the patient arrives in the emergency department. Also, MCEP consultation is recommended when EMS providers have questions regarding care of a specific patient.

MEDICAL DIRECTOR NOTIFICATION

SFFD's medical director shall be notified via the departmental chain of command for the events listed below. Written documentation shall be submitted within 24 hours of the event, preferably before completion of the shift.

- Haloperidol administration
- Failed airway attempts
- Surgical cricothyrotomy attempts
- Medication errors or omissions
- Disputes with physician(s) that remain unresolved after one-on-one meeting
- Patient deterioration or death believed to be secondary to EMS care
- Interventions performed without required medical control
- Deviations from protocol

3 ABOUT THE PROTOCOLS

STANDING ORDERS AND MEDICAL CONTROL

SFFD EMTs function under medical control, either direct (voice communication with a medical control emergency physician [MCEP]) or indirect (standing orders established by the service medical director).

Throughout these protocols, directives not preceded by the words “contact medical control” may be considered standing orders for the specific condition addressed by each protocol. Directives preceded by the words “contact medical control” may be considered standing orders only when communication with MCEP cannot be established. The barriers to contacting MCEP should be documented and submitted to SFFD’s medical officer within 24 hours. Note that a registered nurse may act as an intermediary for MCEP, but the physician must be identified by name.

Authorization of treatment requiring orders is at the discretion of the MCEP at the receiving facility. MCEP orders may be executed if the intervention is (1) indicated for the patient’s condition, (2) within the EMT’s scope of practice, and (3) included in SFFD’s list of approved skills. If requested orders are not authorized by MCEP, concerns may be communicated to SFFD’s medical officer and medical director through the departmental chain of command.

STANDING ORDERS: PRIMARY MANAGEMENT (ABCs)

The directive “establish primary management” is found throughout these protocols. It indicates that complete primary and secondary surveys should be performed, if possible, and that via standing orders all necessary and appropriate interventions should be performed to maintain airway, breathing, and circulation. Primary management appropriate to each level of EMT licensure is outlined below.

A: Ensure a patent airway

ALL EMTS

- Positioning
- Suction (oropharyngeal, nasopharyngeal, stomal)
- Nasopharyngeal and oropharyngeal airway insertion
- LMA insertion

PARAMEDICS

- Suction (endotracheal)
- Laryngoscopy
- Magill forceps manipulation
- Tracheal intubation (nasal, oral, stomal)
- Surgical cricothyrotomy

B: Ensure adequate ventilation and oxygenation

ALL EMTS

- Ventilation with manual (BVM) or automatic ventilator
- Pulse oximetry
- Capnograpy/capnometry

PARAMEDICS

- Needle thoracotomy (chest decompression)

C: Ensure adequate circulation

ALL EMTS

- Automatic external defibrillation
- CPR
- Positioning (supine, Trendelenberg)
- Glucometry
- Cardiac monitoring

INTERMEDIATES AND PARAMEDICS

- Peripheral and external-jugular IV access and IV fluid administration

PARAMEDICS

- Use of pre-existing vascular access, including central venous catheters, as primary IV site
- Intraosseous (IO) access
- Manual defibrillation, synchronized cardioversion, and external pacing
- Performance of ACLS and PALS skills as defined in these protocols or in current American Heart Association standards

A complete assessment, up to the EMT's level of licensure, includes the following, as appropriate:

- Level of consciousness
- Mental status
- History of present incident, past medical history, allergies, and medications
- Vital signs, including respiratory rate/effort/depth, pulse rate/strength/regularity, blood pressure, pulse oximetry, and blood glucose level
- Complete physical examination, including lung sounds and neurological exam
- Cardiac monitor and/or 12 lead ECG
- Capnography/capnometry

STANDING ORDERS: CONTROLLED SUBSTANCES

Standing orders for controlled substances are found throughout these protocols. The following paragraphs and chart summarize the intended framework in which paramedics may administer controlled substances under standing orders.

In general, morphine and benzodiazepines are not appropriate for patients with multisystem trauma.

In general, morphine and benzodiazepines are administered only to stable patients with isolated injuries. Morphine or benzodiazepines shall not be administered to any pregnant patient without first contacting MCEP. Fentanyl may be given for pain relief in the setting of trauma.

Any administration outside this framework requires on-line medical control.

Controlled Substances: Standing Orders Summary for Adults

Drug	*Pain*	*Seizure*	*Sedation*	*Post-Intubation*
Morphine	2-10 mg		2-10 mg	
Diazepam		2-10 mg		
Midazolam		1-5 mg	1-5 mg	2-10 mg
Fentanyl	50-200 mcg			

Notes:
1. Fentanyl administration should be limited to 100 mcg intitally with repeat 100 mcg given only after reevalation of patient unless otherwise stated in protocols ie chest pain.
2. Pediatric doses and limits are referenced in the individual protocols.
3. With all narcotics and benzodiazepines, it is desirable to start with a lower dose and titrate to desired effect.
4. Use extreme care when administering morphine to any patient previously medicated with benzodiazepines.
5. When a stable patient with severe pain is being transported from the Santa Fe Ski Area and MCEP cannot be contacted, a paramedic may administer an additional 5 mg of morphine. Upon completion of the call, the paramedic must contact SFFD's medical director through the departmental chain of command within 24 hours. The medical director will review the case with the paramedic.
6. See "Post-Intubation Sedation" protocol.

AIRWAY MANAGEMENT: PARAMEDIC GUIDELINES

DESIGNATION OF CONDITION

Paramedics should intubate apneic or severely hypoxic patients who do not improve with basic airway maneuvers and oxygen administration, or for whom airway problems are anticipated (facial/airway burns, severe asthma, impending respiratory arrest, etc.).

PARAMEDICS

- If closed head injury is suspected and patient is not hypotensive or bradycardic, administer lidocaine 1.5 mg/kg IVP prior to intubation.
- Midazolam 0.1 mg/kg up to 10 mg IVP or IM may be administered if the paramedic determines that sedation is crucial to post-intubation management of the non-trauma patient. Midazolam should not be used to facilitate intubation.
- Medications should be administered in increments with intervening serial assessments whenever possible.
- Immediately following intubation, tracheal placement must be confirmed and documented using at least three indicators (e.g. physical exam, gum-elastic bougie, Toomey syringe, ETCO2).

- ETCO2 monitoring must be initiated immediately and continuously monitored for all intubated patients. Both numeric value and waveform must be monitored and documented.
- Other confirmation indicators include direct visualization, chest rise, equal bilateral lung sounds, no epigastric sounds, and improving oxygen saturation, vital signs, and skin signs.

- Post-intubation sedation with midazolam should be considered when appropriate. See “Post-Intubation Sedation” protocol.

POST-INTUBATION SEDATION

DESIGNATION OF CONDITION

The patient will have been intubated either by EMS prior to transport or in the hospital prior to interfacility transfer.

PARAMEDICS

- Continuously monitor and document $ETCO_2$.
- Midazolam may be administered as necessary for post-intubation sedation during transport to the hospital. In general, midazolam for post-intubation sedation should not exceed 10 mg. In rare circumstances, when agitation is thought to be secondary to pain and transport is prolonged, contact medical control to discuss morphine in addition to midazolam.
- Patients who have been paralyzed with neuromuscular blocking agents are unable to exhibit the usual signs of agitation and/or pain. Observe closely for tachycardia, hypertension, tearing, or other signs and ensure that adequate sedation and analgesia are administered to keep the patient comfortable. This should be balanced with the need to keep the patient in a state which will allow assessment at the receiving hospital. Monitor vital signs carefully, with particular attention for hypotension, when combining benzodiazepines and opiates.
- The paramedic must confirm and document tracheal tube patency before releasing the patient to the receiving hospital. The receiving physician should also be asked to verify tube patency before receiving the patient.

4 CARDIAC EMERGENCIES

ASYSTOLE, WITNESSED RHYTHM DETERIORATION

DESIGNATION OF CONDITION

The patient will be unresponsive, apneic, and pulseless, and the cardiac monitor will show asystole (confirmed with ten-second strips in at least two leads).

This protocol is intended for witnessed deterioration to asystole from any organized rhythm.

ALL EMTS

- Establish primary management.
- Basics and intermediates should use AED, perform CPR, and secure airway per scope of practice if paramedic not already on scene.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and consider early bolus based on history.
- Intermediates should administer epinephrine 1 mg (10 ml of 1:10,000) IV/IO every 3 minutes until pulse returns or paramedics arrive.

PARAMEDICS

- Confirm asystole in multiple leads.
- Start CPR, intubate, and initiate IV/IO (if CPR, LMA, and IV/IO not already in place).
- If transcutaneous pacing is to be performed, initiate immediately.
- Administer vasopressin 40 U (one-time dose) as the first-line agent.
- Administer epinephrine 1 mg (10 ml of 1:10,000) every 3 min until the rhythm changes or mechanical capture occurs if pacing is being attempted.
- Administer atropine 1 mg IV/IO every 3 min until the rhythm changes or maximum total dose of 0.04 mg/kg. Usual adult total dose is 3 mg.
- In cases of known or suspected hyperkalemia (e.g. renal failure) or hypocalcemia (e.g. after multiple blood transfusions) consider calcium chloride 1 g (10 ml of 10%) slow IV/IO push, followed by sodium bicarbonate 1 mEq/kg IV/IO, early in resuscitation.
- CPR and ACLS should not be interrupted longer than necessary to assess for mechanical capture during pacing attempts.
- Only paramedics may terminate unsuccessful field resuscitation via standing orders. Consider termination of efforts for any normothermic adult in asystolic cardiac arrest who is unresponsive to appropriate defibrillation, airway management and ventilation, and rhythm-appropriate drugs. Involvement of medical control is encouraged. In cases of electrocution, drowning, overdose, or environmental hypothermia, continue CPR and ACLS pending medical control contact.

ASYSTOLE, PEDIATRIC

DESIGNATION OF CONDITIOIN

The patient will be unresponsive, apneic, and pulseless, and the cardiac monitor will show asystole (confirmed with ten-second strips in at least two leads).

ALL EMTS

- Establish primary management, including CPR.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution.
- Intermediates should administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 minutes until pulse returns or paramedics arrive. Maximum single dose is 1 mg.

PARAMEDICS

- Confirm asystole in multiple leads.
- Start CPR, intubate, and initiate IV/IO (if not already in place).
- Confirm asystole in multiple leads.
- Administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 min until the rhythm changes.
- For normothermic patients who continue in asystole despite appropriate airway management, ventilation, CPR, and drugs, contact medical control and consider field termination of resuscitation efforts, taking down time into account.

ATRIAL FIBRILLATION/FLUTTER, SYMPTOMATIC

DESIGNATION OF CONDITION

To qualify for prehospital cardioversion, the atrial fibrillation/flutter patient should be determined to be critically unstable. The benefits of cardioversion should be considered against the known risk of embolic complications with cardioversion of atrial fibrillation/flutter > 48 hr in duration. If the time of onset is unclear or suspected to be > 48 hr, contact medical control prior to cardioversion.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Contact medical control if possible prior to cardioversion of atrial fibrillation.
- Perform synchronized cardioversion.
  - For atrial fibrillation, begin at 100 J and proceed to 150 J and 200 J as needed.
  - For atrial flutter, begin at 50 J and proceed to 100 J and 150 J, as needed.

BRADYCARDIA, SYMPTOMATIC

DESIGNATION OF CONDITION

The patient will be bradycardic (HR < 60) and hypotensive (systolic BP < 90), with associated signs and symptoms such as altered LOC, dyspnea, and/or chest pain.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Administer atropine 0.5 mg IV/IO every 3 min to a maximum total dose of 0.04 mg/kg. Usual total adult dose is 3 mg.
  - The goal is HR of at least 60 and systolic BP > 90.
  - In cases of AMI or high-degree heart block (second degree Type II or third degree), atropine should be administered only after attempts to pace have failed.
  - Atropine is preferred over pacing for vagally induced bradycardia.
- Start pacing at a rate of 70 bpm. Increase current in 20 mA increments until electrical capture is obtained; then increase in 5 mA increments until mechanical capture is obtained.
  - Vascular access is required in anticipation of analgesia/sedation, but pacing should not be delayed to initiate access. Ideally, the two procedures should be performed simultaneously.
- For patients on calcium channel blockers, consider calcium choride 1 g (10 ml of 10%) slow IV/IO push.
  - Do not administer calcium to patients on digoxin.
- In cases of beta blocker or calcium channel blocker overdose, consider glucagon 1 mg IV/IO every 3 minutes to desired effect or total dose of 3 mg.
- If above treatments are not effective, administer dopamine 5-20 mcg/kg/min IV/IO piggyback; titrate to heart rate and BP.

BRADYCARDIA, SYMPTOMATIC, PEDIATRIC

DESIGNATION OF CONDITION

The patient will be bradycardic (HR < 60) and hemodynamically unstable, with associated signs and symptoms such as altered LOC.

ALL EMTS

- Establish primary management.
- Check BGL.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution.
- Intermediates may not give epinephrine to any patient with a pulse.

PARAMEDICS

- Assess for signs and symptoms of poor perfusion.
- Assess rate and depth of ventilation, secure airway as necessary, and administer high-flow oxygen.

Neonate (age ≤ 1 mo)

- If HR < 60 despite adequate oxygenation and ventilation for 30 sec, begin CPR.
- Administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 min until the rhythm changes. Maximum single dose is 1 mg.

Infant/child (age 1 mo to 8 yr)

- If HR < 60 despite adequate oxygenation and ventilation for 30 sec, and signs of poor perfusion, begin CPR.
- Administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 min until the rhythm changes. Maximum single dose is 1 mg.
- Administer atropine 0.02 mg/kg IV/IO (0.1 mg minimum single dose, 0.5 mg maximum single dose)
    - Atropine may be repeated once.

CARDIAC ARREST, HYPOTHERMIA

DESIGNATION OF CONDITION

The patient will be unresponsive, apneic, and pulseless, with core temperature < 92°F (33°C). Note that tympanic thermometers may not be accurate at low temperatures.

ALL EMTS

- Establish primary management.
- Remove patient from cold environment, strip wet clothing, and cover with blankets.
- Goal is to achieve core rewarming.
- Basics and intermediates should use AED, perform CPR, and secure airway per scope of practice if paramedic not already on scene.
  - Defibrillation is unlikely to cause conversion to a normal rhythm until core temperature is > 86°F (30°C).
- Ventilate at a maximum rate of 6-10/min, with warm humidified oxygen if available.
- Rapid transport.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with warm isotonic solution.

PARAMEDICS

- Provide rhythm-specific treatment per protocols.
  - Double the time intervals between drug administrations.
- In cases of known or suspected hyperkalemia (e.g. renal failure) or hypocalcemia (e.g. after multiple blood transfusions) consider calcium chloride 1 g (10 ml of 10%) slow IV/IO push, followed by sodium bicarbonate 1 mEq/kg IV/IO, early in resuscitation.
- If pulses develop:
  - Do not treat bradycardia or atrial fibrillation (assuming severe hypothermia).
  - If rhythm is VT with pulse, administer amiodarone 150 mg or lidocaine 1 mg/kg IV/IO.
- Contact medical control.

CARDIOGENIC SHOCK

DESIGNATION OF CONDITION

The patient will usually present with signs and symptoms of shock (including altered LOC, tachycardia, hypotension), shortness of breath, and pulmonary edema. These signs and symptoms are usually observed in the setting of AMI and require expeditious transport.

ALL EMTS

- Establish primary management.
- Place patient in Trendelenberg position or position of comfort.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with large-bore catheter and isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion. If systolic BP < 80, administer 250 ml bolus and reassess.

PARAMEDICS

- Administer dopamine 5-20 mcg/kg/min IV/IO piggyback.
- If wheezing or poor air movement is noted, or if patient is in respiratory arrest, administer albuterol 5 mg nebuized.

CHEST PAIN

DESIGNATION OF CONDITION

The patient will complain of substernal chest discomfort, which may be described as pain, tightness, or pressure and may radiate to the epigastrium, jaw, neck, arms, or back. When in doubt, treat as an AMI. Thoracic aortic dissection may mimic an AMI in presentation and in response to treatment.

ALL EMTS

- Establish primary management, including oxygen sufficient to address dyspnea.
- Administer ASA 162 mg PO, chewed and swallowed.
- Begin cardiac monitoring, unless impending cardiac arrest is anticipated. If cardiac arrest appears imminent, attach defibrillation electrodes.
- Obtain a 12-lead ECG and serial 12-lead ECGs, and include lead V4R if an inferior MI is suspected. Leave electrodes on patient's chest.
- Evaluate whether patient meets AMI STAT criteria (see below).

INTERMEDIATES AND PARAMEDICS

- Enroute, initiate isotonic IV and titrate to LOC, HR, and end-organ perfusion.
- When possible, establish two lines, with the first in the left arm.
- When directed by an on-scene paramedic, an intermediate may administer morphine as specified below.

PARAMEDICS

- The treatment goal is to relieve the chest pain as much as possible, as long as the patient remains hemodynamically stable.
- Obtain 12-lead ECG before giving NTG/morphine.
- If systolic BP > 100 and HR > 60, administer NTG 0.4 mg SL every 3-5 min as needed.
  - NTG is contraindicated in patients who have taken medication for erectile dysfunction within 24 hours.
  - Use NTG with caution if inferior MI is suspected.
- If pain persists and patient remains hemodynamically stable, administer morphine 2-10 mg IV, titrated to pain relief and hemodynamic effect.
  - Use morphine with caution if inferior MI is suspected.
  - Contact medical control for orders if more than 10 mg is needed.
- Consider fentanyl 25-100 mcg for chest pain if systolic BP > 90.

AMI STAT

If the patient meets the criteria outlined below, the EMS provider should notify St. Vincent Hospital ER of an “AMI STAT” candidate. This terminology allows for the highest state of readiness upon the AMI patient’s arrival.

The patient must meet BOTH of the pain criteria AND AT LEAST ONE of the ECG criteria.

Pain

- Ongoing chest discomfort (persistent for more than 20 min and unrelieved by NTG)

AND

- Time since onset less than 12 hr.

ECG

- "Acute AMI Suspected" or ST elevation greater than 1 mm in two contiguous leads

OR

- LBBB

OR

- Internal paced rhythm, with history and physical exam consistent with acute coronary syndrome.

CONGESTIVE HEART FAILURE / PULMONARY EDEMA

DESIGNATION OF CONDITION

The patient will present with moderate to severe dyspnea and/or pulmonary edema (including wet lung sounds and possibly pink frothy sputum), and may have a known history of congestive heart failure.

Fever suggests infectious rather than cardiac origin. Look for a differential diagnosis accordingly.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- If systolic BP > 100 and HR > 60, administer NTG 0.4 mg SL every 3-5 min as needed.
  - NTG is contraindicated in patients who have taken medication for erectile dysfunction within 24 hours.
- Administer furosemide 20-80 mg slow IV/IO push.
  - If the patient has a prescription for furosemide, consider administering IV furosemide at the oral dose.
  - If the patient does not have a history of CHF and/or does not have a prescription for oral diuretics, contact medical control for orders.
- Administer albuterol 2.5-5 mg via nebulizer and repeat as needed.
- Administer morphine sulfate IV/IO in 2 mg increments to a total of 6 mg.
- Consider CPAP for patient unresponsive to medical therapy.

PACING

DESIGNATION OF CONDITION

A conscious patient undergoing transcutaneous pacing, or with a malfunctioning implanted defibrillator/pacemaker, may experience discomfort necessitating sedation and/or analgesia.

PARAMEDICS

- Administer one of the following:
  - midazolam 1-5 mg slow IV/IO push or IM, in 1 mg increments titrated to effect
  - fentanyl 50-200 mcg slow IV/IO push, or morphine 2-10 mg slow IV/IO push or IM
- If higher doses are required, contact medical control at the destination hospital.
- Continuously monitor the patient's respiratory status (rate and depth) and pulse oximetry.

PULSELESS ELECTRICAL ACTIVITY

DESIGNATION OF CONDITION

The patient will be unresponsive, apneic, and pulseless, and the cardiac monitor will show an organized rhythm.

Potentially treatable causes of PEA include the "5 H's and 5 T's": hypovolemia, hypoxia, hydrogen ion (acidosis), hyperkalemia/hypokalemia, hypothermia, tablets (drug OD) and toxins, tamponade (cardiac), tension pneumothorax, thrombosis (coronary), and thrombosis (pulmonary).

ALL EMTS

- Establish primary management
- Basics and intermediates should use AED, perform CPR, and secure airway per scope of practice if paramedic not already on scene.
- Consider and treat underlying causes.

INTERMEDIATES AND PARAMEDICS

- Establish at least one large-bore isotonic IV/IO line and begin fluid bolus of 20 ml/kg.
- Intermediates should administer epinephrine 1 mg (10 ml of 1:10,000) IV/IO every 3 min until pulses return or paramedics arrive.

PARAMEDICS

- Start CPR, intubate, and initiate IV/IO (if CPR, LMA, and IV not already in place).
- Administer vasopressin 40 IU IV/IO as the first-line agent.
- Administer epinephrine 1 mg (10 ml of 1:10,000) IV/IO every 3-5 min until the rhythm changes or mechanical capture occurs if pacing is being attempted.
- If PEA rate is slow, administer atropine 1 mg IV/IO every 3 min as needed, to a maximum total dose of 0.04 mg/kg. Usual adult total dose is 3 mg.
- Identify and treat reversible causes ("5 H's and 5 T's"): hypovolemia, hypoxia, hydrogen ion (acidosis), hyperkalemia/hypokalemia, hypothermia, tablets (drug OD) and toxins, tamponade (cardiac), tension pneumothorax, thrombosis (coronary), and thrombosis (pulmonary).
- In cases of known or suspected hypocalcemia (e.g. after multiple blood transfusions) consider calcium chloride 1 g (10 ml of 10%) slow IV/IO push.
- In cases of known or suspected hyperkalemia (e.g. renal failure) consider sodium bicarbonate 1 mEq/kg IVP and calcium chloride 1 g (10 ml of 10%) slow IV/IO push early in resuscitation.
- Only paramedics may terminate unsuccessful field resuscitation via standing orders. Consider termination of efforts for any normothermic adult in asystolic cardiac arrest who is unresponsive to appropriate defibrillation, airway management and ventilation, and rhythm-appropriate drugs. Involvement of medical control is encouraged.

PULSELESS ELECTRICAL ACTIVITY, PEDIATRIC

DESIGNATION OF CONDITION

The patient will be unresponsive, apneic, and pulseless, and the cardiac monitor will show an organized rhythm.

Potentially treatable causes of PEA include the "5 H's and 5 T's": hypovolemia, hypoxia, hydrogen ion (acidosis), hyperkalemia/hypokalemia, hypothermia, tablets (drug OD), tamponade (cardiac), tension pneumothorax, thrombosis (coronary), and thrombosis (pulmonary).

ALL EMTS

- Establish primary management, including CPR.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution, administer 20 ml/kg bolus, and reassess.
- Intermediates should administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 minutes until pulse returns or paramedics arrive. Maximum single dose is 1 mg.

PARAMEDICS

- Start CPR, intubate, and initiate IV/IO (if not already in place).
- Administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 min until the rhythm changes. Maximum single dose is 1 mg.
- Identify and treat reversible causes ("5 H's and 5 T's"): hypovolemia, hypoxia, hydrogen ion (acidosis), hyperkalemia/hypokalemia, hypothermia, tablets (drug OD) and toxins, tamponade (cardiac), tension pneumothorax, thrombosis (coronary), and thrombosis (pulmonary).
- For normothermic patients who deteriorate to asystole despite appropriate airway management, ventilation, CPR, and drugs, contact medical control and consider field termination of resuscitation efforts, taking down time into account.

SUPRAVENTRICULAR TACHYCARDIA

DESIGNATION OF CONDITION

The patient will have a regular HR > 140 with a supraventricular focus by history, or a QRS complex < 0.12 sec and an ECG consistent with SVT. Consider compensatory tachycardia and/or fever and the global clinical picture before treating.

ALL EMTS

- Establish primary management.
- Reassure and place the patient in a position of comfort.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and consider early bolus based on history. A proximal site, such as the antecubital fossa, is preferred in anticipation of adenosine administration.

PARAMEDICS

- Initiate continuous cardiac monitoring and recording prior to conversion efforts.
- If patient is stable:
  - Have patient perform Valsalva's maneuver.
  - Place patient in Trendelenburg position while continuing Valsalva's maneuver.
  - Administer adenosine 6 mg rapid IV/IO push, followed by 20 ml NS flush. Up to two repeat doses of 12 mg, followed by 20 ml NS flush, may be given as needed
- If patient is critically unstable (with significantly altered LOC, severe dyspnea, severe chest pain, and/or profound hypotension):
  - If IV/IO access can be obtained quickly, administer adenosine 12 mg rapid IV/IO push, followed by 20 ml NS flush.
  - If adenosine does not convert rhythm and patient remains unstable, perform synchronized cardioversion, starting at 100 J and proceeding to 150 J and 200 J as needed.

SUPRAVENTRICULAR TACHYCARDIA, PEDIATRIC

DESIGNATION OF CONDITION

The patient will have HR > 180 (> 220 if an infant), monitored rhythm with a supraventricular focus (narrow-complex tachycardia), and ECG consistent with supraventricular tachycardia.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution.

PARAMEDICS

- If patient is stable, ensure adequate oxygenation and transport.
- If patient is unstable, contact medical control to discuss orders for adenosine and/or synchronized cardioversion.
  - If IV/IO access immediately available, administer adenosine 0.1 mg/kg rapid IV/IO push followed by NS 2-5 ml RIVP. If SVT persists, adenosine may be doubled and repeated once. Maximum single dose is 12 mg.
  - If IV/IO is not immediately available, or if adenosine does not convert the rhythm, perform synchronized cardioversion, starting at 0.5-1 J/kg and proceeding to 1-2 J/kg as needed.
- Transport expeditiously with fluid resuscitation en route as needed.

VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

DESIGNATION OF CONDITION

The patient will be unresponsive, apneic, and pulseless, and the cardiac monitor will show ventricular fibrillation or ventricular tachycardia.

ALL EMTS

- Establish primary management.
- Basics and intermediates should use AED, perform CPR, and secure airway per American Heart Association guidelines and New Mexico scope of practice if paramedic not already on scene.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.
- Intermediates should administer epinephrine 1 mg (10 ml of 1:10,000) every 3 min until pulse returns or paramedics arrive.
    - Do not administer epinephrine if paramedics are already on scene.

PARAMEDICS

- If the arrest was witnessed and monitored, defibrillate immeadiatly at 150 J.
- Organize CPR in 2-min periods (5 cycles of 30 chest compressions and 2 ventilations each). Minimize interruptions, pausing only to check rhythm and deliver shocks. Perform CPR while defibrillator is charging, and resume CPR immediately after shock delivery. Prepare drug doses prior to rhythm check and administer drugs during CPR, as soon after rhythm check as possible.
- Defibrillate at 150 J after each 2-min period if indicated.
- Secure airway and initiate IV/IO (if LMA and IV/IO not already in place).
- Administer vasopressin 40 IU IV/IO, one-time dose, as the first-line drug.
- Administer epinephrine 1 mg (10 ml of 1:10,000) IV/IO every 3 min as needed.
- Consider antiarryhthmics for shock-resistant VF or pulseless VT:
    - Administer amiodarone 300 mg IV/IO; repeat once in 5-10 min at 150 mg IV/IO if VF/VT continues.
    - Consider lidocaine 1.5 mg/kg IV/IO; repeat once in 3-5 min as needed.
    - Consider magnesium sulfate 2 g slow IV/IO push for refractory VF and for suspected torsades de pointes.
- In cases of suspected hyperkalemia (e.g. renal failure) consider sodium bicarbonate 1 mEq/kg IV/IO and calcium chloride 1 g (10 ml of 10%) slow IV/IO push early in resuscitation.
- Only paramedics may terminate unsuccessful field resuscitation via standing orders. Consider termination of efforts for any normothermic adult in asystolic cardiac arrest who is unresponsive to appropriate defibrillation, airway management and ventilation, and rhythm-appropriate drugs. Involvement of medical control is encouraged.

V-FIB AND PULSELESS V-TACH, PEDIATRIC

DESIGNATION OF CONDITION

The patient will be unresponsive, apneic, and pulseless, and the cardiac monitor will show ventricular fibrillation or ventricular tachycardia.

ALL EMTS

- Establish primary management, including CPR.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution.
- Intermediates should administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 minutes until pulse returns or paramedics arrive. Maximum single dose is 1 mg.

PARAMEDICS

- Defibrillate at 2 J/kg; for subsequent shocks, increase dose to 3-4 J/kg and 4 j/kg.
- Intubate and establish isotonic IV or IO if not already done.
- Administer epinephrine 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 3 min until the rhythm changes. Maximum single dose is 1 mg.
- Consider other drugs between defibrillation attempts:
  - Amiodarone 5 mg/kg IV/IO.
  - Lidocaine 1 mg/kg IV/IO; may repeat once in 3-5 min
  - Magnesium sulfate 25-50 mg/kg IV/IO, maximum dose 2 g, for torsades de pointes or known hypomagnesemia.
- Defibrillate at 4 J/kg 30-60 seconds after each drug administration.
- Contact medical control to discuss field termination of resuscitation efforts for normothermic patients who deteriorate to asystole despite appropriate airway management, ventilation, CPR, and drugs, taking down time into account.

VENTRICULAR TACHYCARDIA, ADULT, STABLE

DESIGNATION OF CONDITION

The cardiac monitor will show sustained ventricular tachycardia (wide-complex tachycardia, and the patient will be conscious and alert with a systolic BP > 90 and no significant dyspnea, chest pain, or diaphoresis.

ALL EMTS

- Establish primary management.
- Reassure the patient and place in a position of comfort.

INTERMEDIATES AND PARAMEDICS

- Establish IV access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Administer amiodarone 150 mg IV over 10 min.
- If VT continues after amiodarone, consider lidocaine bolus 1 mg/kg IV; repeat at 0.5-0.75 mg/kg every 5 min to therapeutic effect or total dose of 3 mg/kg.
- Initiate lidocaine maintenance infusion 2-4 mg/min IV piggyback.
  - Reduce lidocaine dosage by one-half for patients over 70 years old and for patients with a history of liver failure or congestive heart failure.
  - If loading dose of lidocaine fails to convert the rhythm, contact medical control.
- If rhythm is thought to be torsades de pointes, administer magnesium sulfate 2 g in 250 ml NS IV over 10 min.

VENTRICULAR TACHYCARDIA, ADULT, UNSTABLE

DESIGNATION OF CONDITION

The cardiac monitor will show sustained ventricular tachycardia (wide-complex tachycardia), generally at a rate > 150. The patient will have a pulse but will be hypotensive, with decreased LOC, significant dyspnea, severe chest pain, and/or diaphoresis.

ALL EMTS

Establish primary management.
Notify the arriving ALS unit.

INTERMEDIATES AND PARAMEDICS

Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS,

- Perform synchronized cardioversion, starting at 100 J and proceeding to 150 J, and 200 J as needed.
  - Administer amiodarone 150 mg IV/IO over 10 min.
- Consider lidocaine bolus 1.5 mg/kg IV/IO; repeat at 0.75 mg/kg every 5 min to therapeutic effect or a total of 3 mg/kg.
- Repeat synchronized cardioversion at 200 J after each drug bolus.
- Initiate lidocaine maintenance infusion at 2-4 mg/min IV/IO piggyback.
  - Reduce lidocaine dosage by one-half for patients over 70 years old and for patients with a history of liver failure or congestive heart failure.
- If rhythm is thought to be torsades de pointes, administer magnesium sulfate 2 g in 250 ml NS IV/IO over 10 min.
- Contact medical control if unstable VT continues after above treatment.

VENTRICULAR TACHYCARDIA, PEDIATRIC

DESIGNATION OF CONDITION

The patient will have a pulse and the cardiac monitor will show sustained ventricular tachycardia (wide-complex tachycardia).

ALL EMTS

- Establish primary management.

INTERMEIDATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution.

PARAMEDICS

- If patient is stable (asymptomatic), administer lidocaine 1 mg/kg slow IV/IO push. Repeat every 5-8 min to therapeutic effect or a total of 3 mg/kg. Maximum single dose is 100 mg.
- If patient is unstable (symptomatic):
  - Perform synchronized cardioversion at 0.5-1.0 J/kg. Repeat at 1-2 J/kg as needed up to 3 shocks total.
  - Consider amiodarone 5 mg/kg IV/IO over 20-60 min or lidocaine 1 mg/kg IV/IO.

5 MEDICAL EMERGENCIES

ALLERGIC REACTIONS / ANAPHYLAXIS

DESIGNATION OF CONDITION

The patient will present with respiratory distress from bronchoconstriction and/or upper airway edema due to an allergic reaction. Other allergy signs and symptoms include wheezing, urticara (hives, rash), or shock (tachycardia, hypotension). Common allergies include medicines (especially antibiotics), foods (nuts, shellfish), and bee/wasp/hornet stings.

Symptoms that have been present for > 1 hr without increasing in severity are unlikely to worsen suddenly. Hives or a rash not associated with breathing or swallowing problems are unlikely to develop into more severe problems later.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

If patient is stable:

- Enroute, initiate an isotonic IV/IO and titrate to maintain LOC, HR and end organ perfusion.
- Administer albuterol 5-10 mg nebulzied if wheezing or decreased breath sounds are detected
- For severe urticaria without other signs and symptoms, consider diphenhydramine 25-50 mg IV/IO or IM (adult) or 1 mg/kg IV/IO or IM (pediatric) and/or epinephrine SQ as described below.

If patient is unstable:

- In cases of severe respiratory distress or angioedema, administer epinephrine, albuterol, and diphenhydramine. Cardiac monitoring is required for all patients receiving epinephrine and/or 10 mg of albuterol.
  - Epinephrine: Adult, 0.3 mg (0.3 ml of 1:1000) SQ or IM. Pediatric, 0.01 mg/kg (0.01 ml/kg of 1:1000) SQ. May repeat once in 10 min.
  - Albuterol 5-10 mg via nebulizer.
  - Diphenhydramine: Adult, 50mg IV/IO or IM. Pediatric, 1 mg/kg IV/IO or IM.
- Initiate aggressive isotonic fluid therapy with multiple large-bore lines.

PARAMEDICS

- Repeat epinephrine SQ or IM, as above, every 3 min as needed for SBP < 90.
- If the patient is on beta blockers or otherwise unresponsive to epinephrine, consider glucagon 1 mg IV/IO every 3-5 min to desired response or a total of 3 mg.

ALTE: APPARENT LIFE-THREATENING EVENT IN INFANTS

DESIGNATION OF CONDITION

An episode that is frightening to the parent or caregiver and that is characterized by some combination of the following observations: (1) apnea (absence of breathing for at least 3 breaths and not simple gasping), (2) skin color change (cyanosis or recognized paleness), (3) marked change in muscle tone (unexplained rigidity or flaccidity), (4) unexplained choking or gagging (*not* choking or gagging episodes that commonly occur with feeding or rhinorrhea). In some cases the observer fears that the infant is dead and has initiated CPR.

An apparent life-threatening event (ALTE) describes a set of symptoms and is associated with a wide variety of illnesses, including gastroesophageal reflux, pertussis, RSV infection, UTI, metabolic disorders, cardiac dysrhythmias, seizures, sepsis, and child abuse.

The majority of infants with an ALTE will appear to be in no acute distress when evaluated by EMS personnel. Therefore the signs and symptoms noted by the caregiver should be considered credible—even when they do not match the observations of EMS providers.

ALL EMTS

- Airway: Ensure it is clear and patent.
- Breathing: Evaluate lung sounds. Record the respiratory rate. Evaluate work of breathing (use of accessory muscles, nasal flaring, grunting). Obtain pulse oxymetry. Provide oxygen as indicated.
- Circulation: Note skin color and capillary refill. Record pulse quality and rate. Initiate isotonic IV/IO if necessary. Apply cardiac monitor as indicated.
- Neurological status: Is the infant alert and appropriately interactive? If not, check blood glucose. Check pupils. Note abnormal muscle tone or movements.
- Expose: Expose the infant. Look carefully for signs of trauma or rash.
- Carefully record the signs and symptoms observed by caregivers.
- Transport to hospital.

ASTHMA

DESIGNATION OF CONDITION

The patient will present with dyspnea, perhaps accompanied by wheezing, secondary to bronchoconstriction. The patient will almost always have a history of asthma and will often have used prescription medications without relief. Wheezing may not be present; lack of wheezing with diminished breath sounds may be a sign of impending respiratory arrest.

ALL EMTS

- Establish primary management.
- Initiate rapid transport if RR > 30 or < 10, or if distress is worsening.

INTERMEDIATES AND PARAMEDICS

- Administer albuterol 5-10 mg (adult) or 5 mg (child) by nebulizer: Repeat 5 mg treatments as needed.
  - Some patients require continuous nebulizer treatment during transport.
  - Cardiac monitoring is required for patients receiving > 10 mg of albuterol.
  - Deliver nebulized albuterol via BVM if patient's respiratory effort is ineffective.
  - Do not delay on-scene care waiting for the medication to take effect.
- Enroute, consider isotonic IV/IO, titrated to maintain LOC, HR, and end-organ perfusion. Consider bolus for dehydration.
- For severe, life-threatening asthma (cyanosis, inability to speak, silent chest, impending respiratory arrest, unresponsive to albuterol, poor SpO2, etc), administer epinephrine SQ.
  - Adult, 0.3 mg (0.3 ml of 1:1000) SQ.
  - Child, 0.01mg/kg (0.1 ml of 1:1000) SQ.
  - Epinephrine should be administered cautiously to patients with a history of CAD and/or hypertension, or age > 45.
  - Cardiac monitoring is required for all patients receiving epinephrine.

PARAMEDICS

- Repeat epinephrine SQ or IM as above every 5 min as needed.
- Contact medical control.
- If intubation is required, do not hyperventilate. Use controlled ventilation to maintain SpO2 > 90%
- Administer magnesium sulfate 2 g slow IV/IO push.
- Consider CPAP for patients unresponsive to medical therapy

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

DESIGNATION OF CONDITION

Any patient who is in respiratory distress with signs and symptoms consistent with asthma, COPD, pulmonary edema, or CHF exhibiting a respiratory rate greater than 25 breaths per minute and a SPO2 of less than 94% at any time.

USE OF CPAP IS ONLY INDICATED FOR PATIENTS WHO

1) Are awake and able to follow commands
2) Over 8 years old and is able to fit the CPAP mask
3) Have the ability to maintain an open airway

ALL EMTS

- Establish primary management.
- Place patient in position of comfort.
- Explain the procedure to the patient
- Ensure adequate oxygen supply to ventilation device (40-60psi)
- Place the patient on continuous pulse oximetry
- Continually monitor patients vital signs (resp., pulse, b/p) every 5 minutes
- Assure a good seal of the mask
- Continue to coach the patient to keep mask in place and adjust as needed
- If respiratory status deteriorates, remove device and consider intermittent positive pressure ventilation via BVM and placement of OPA ,NPA or LMA.

INTERMEDIATES AND PARAMEDICS

- Establish IV access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion. Precaution should be taken with the potential of fluid overload.

PARAMEDICS

- CPAP should not delay other methods of treatment indicated for respiratory distress and should be in conjunction with such treatments.

CROUP / EPIGLOTTITIS

DESIGNATION OF CONDITION

The patient will present with respiratory distress, stridor, and fever. Epiglottitis is typically characterized by sudden onset, high fever, sore throat, and dysphagia/drooling; patient may be a child or an adult. Croup is typically characterized by gradual onset, low-grade fever, and a barking cough; patient age most commonly 6 mo to 3 yr. Consider foreign body aspiration in differential diagnosis.

ALL EMTS

- Keep child comfortable and quiet with parent.
- Avoid invasive procedures unless lifesaving intervention is required.
- Give oxygen. Humidify if available.
- Allow child to assume position of comfort (usually sitting up with head forward in sniffing position).
- Notify receiving facility ASAP.

PARAMEDICS

- If respiratory distress and stridor continue despite cool mist, administer epinephrine 1 mg (1 ml of 1:1000) in 3 ml NS neb for children and adults up to age 35. For age > 35, contact medical control.
- Ventilate with BVM if necessary.
- Intubate if BVM ineffective.
    - Do not make more than 3 intubation attempts.

DIABETIC EMERGENCIES

DESIGNATION OF CONDITION

The patient will present with signs, symptoms, and/or history consistent with hypoglycemia or hyperglycemia. The BGL will be out or normal range (< 60 mg/dl or > 140 mg/dl). The patient may or may not have a history of diabetes and may or may not be taking insulin or oral agents. Common signs and symptoms of hypoglycemia include altered mental status, diaphoresis, tremor, weakness, and tachycardia; history may include compliance with medications but failure to eat. Common signs and symptoms of hyperglycemia include altered mental status, dehydration, excessive thirst or hunger, and Kussmaul's respirations; history may include noncompliance with medications or recent illness/infection.

ALL EMTS

- Establish primary management.
- Assess BGL.
- If BGL < 60 and patient is alert and able to protect airway, administer oral glucose. Do not administer oral glucose to any patient with altered mentation or airway compromise.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

Hypoglycemia

- If BGL <60 mg/dl with associated signs of hypoglycemia, administer dextrose slow IV/IO push.
  - Adult: 25 g (50 ml of D50W).
  - Pediatric (age 1 mo - 8 yr): 1 g/kg (4 ml/kg of D25W). To make D25W, mix equal parts D50W and NS (take 50 ml D50W, expel 25 ml, and replace with 25 ml NS).
  - Neonate (age < 1 mo): 1g/kg (10 ml/kg of D10W) over 20 minutes. To make D10W, mix 2 ml/kg D50W with 8 ml/kg NS (yield is the full single dose of 10 ml/kg D10W). Alternatively, withdraw 50 ml from a 250 ml bag of NS and replace with 50 ml D50W (yield is 250 ml D10W).
- May repeat in 10 min if patient's condition does not improve.
- If unable to obtain IV/IO access in an adult patient, administer glucagon 1 mg IM (deltoid site is preferred) or IN.
  - Glucagon may cause nausea, vomiting, or anaphylaxis (rare).
  - Administer oral glucose or D50W slow IV/IO push after glucagon to prevent recurrent hypoglycemia (particularly in patients with end-stage liver disease).
- Reassess BGL after each intervention. Blood sample from arm opposite IV line is preferred.
- Contact medical control if patient wants to refuse transport after dextrose administration.

- In general, patients with hypoglycemia secondary to oral antidiabetic agents need to be transported because hypoglycemia can be prolonged. In children, a single pill can be deadly.

Hyperglycemia

- If BGL > 300 mg/dl in an adult patient with clear lung sounds and no history of pulmonary edema or congestive heart failure, administer 500 ml bolus of isotonic fluid and reassess lung sounds. If lung sounds remain clear and SpO2 > 92% on room air, administer an additional 500 mL of isotonic fluid.

FAINTING / SYNCOPE

DESIGNATION OF CONDITION

The patient will have experienced a sudden loss of consciousness. Syncope is almost always a result of other medical conditions.

ALL EMTS

- Establish primary management.
- Obtain detailed past medical history and history of present illness.
- Assess baseline vital signs, including orthostatic vital signs and BGL
- Place patient in supine position.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Obtain 12 lead ECG.

FEVER

DESIGNATION OF CONDITION

Fever is elevated core temperature in a natural response primarily to infection or heat emergencies. Rapid temperature elevation in children may cause seizures. It is important to distinguish fever due to infection from hyperthermia due to environmental exposure and malignant hyperthermia due to medications.

ALL EMTS

- Establish primary management.
- If conscious and alert, patient may drink fluids.

INTERMEDIATES AND PARAMEDICS

- If signs of dehydration or shock potential are present, establish IV/IO access with cool isotonic solution enroute and titrate to maintain LOC, HR, and end-organ perfusion.
- If febrile seizures occur, follow seizure protocol and rapidly cool patient by any reasonable means.

HEAT EMERGENCIES

DESIGNATION OF CONDITION

The patient will present with the following conditions secondary to environmental heat exposure.

Heat cramps: Cramping of large muscle group cramping, usually after prolonged or heavy exertion. Normal LOC.

Heat exhaustion: Often a progression from heat cramps. Signs and symptoms include pale, moist, clammy skin; dilated pupils; weakness, dizziness, headache, or nausea. Normal temperature and LOC.

Heatstroke: A progression from heat exhaustion, with altered LOC, dry/red skin, constricted pupils, high temperature, strong and rapid pulse, deep and rapid respirations, hypotension, dry mouth, and/or seizures.

ALL EMTS

- Establish primary management.
- Remove patient from warm environment
- Rapidly cool patient by whatever reasonable means possible but avoid causing shivering.
- If patient is alert and not nauseated, encourage oral hydration, with commercial electrolyte solution if available.
- If LOC deteriorates, place cold packs in patient's armpits and at neck, ankles, and head. Consider cooling with wet towels/dressings.
- Assess BGL.

INTERMEDIATES AND PARAMEDICS

- Establish multiple lines with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion. Consider fluid bolus and reassess lung sounds.

HYPOTHERMIA

DESIGNATION OF CONDITION

Core temperature < 95˚F. The patient may present with altered mental status or coma. Conditions, medications, and substances that may predispose to hypothermia include exhaustion, diabetes, hypothyroidism, systemic illness or infection, drug or alcohol overdose, and extremities of age.

ALL EMTS

- Establish primary management.
- Remove patient from cold environment.
- Remove any wet/cold clothing.
- Cover torso with warm blankets to prevent further heat loss.
- Assess pulse for one full minute at the carotid or by auscultation of heart sounds. If any pulse is detected, do not perform CPR.
- If patient is unresponsive, apneic, and pulseless, see “Cardiac Arrest Hypothermia” protocol.
- If necessary, assist respirations with warm humidified oxygen, if available, at a maximum rate of 6-10/min.
- Consider wrapping heat packs under arms, groin, and posterior neck.
- Rapid transport.

INTERMEDIATES AND PARAMEDICS

- Enroute, establish IV/IO access with warm isotonic solution.

INCREASED INTRACRANIAL PRESSURE

DESIGNATION OF CONDITION

The patient will be suspected of having increased intracranial pressure due to trauma, infection, aneurysmal bleeding, tumor, or VP shunt failure. Common signs and symptoms include altered mental status, bradycardia, HTN, decerebrate or decorticate posturing, single dilated pupil, and/or fixed and dilated pupils.

ALL EMTS

- Place patient in reverse Trendelenberg position.
- Establish primary management, including ventilation and oxygen as needed to maintain SpO2 > 90%.
- Assess and document Glasgow Coma Scale (GCS) every 5 min for patients who present with a GCS < 9.
- Hyperventilate only if patient shows signs of impending herniation (e.g., "blown" pupil or unequal/asymmetrical pupils). Assess and document GCS every 5 min. Return to normal ventilation if pupils improve (become equal and/or symmetrical.
- Assess BGL if patient presents with altered mentation.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain systolic BP > 90.
- If BGL < 60mg/dl, administer dextrose 12.5 g (25 ml of D50W) and reassess BGL. If BGL still < 60 mg/dl, administer an additional 12.5 g (25 ml) and reassess BGL.
- Do not administer NTG or otherwise attempt to lower BP.

PARAMEDICS

- If patient is being ventilated, maintain ETC02 at 30-35 mmHg. If herniation is imminent, maintain ETC02 at 25 mmHg.
- Follow airway management protocols as appropriate.

MOUNTAIN SICKNESS

DESIGNATION OF CONDITION

Mountain sickness is characterized by headache, fatigue, nausea/vomiting, anorexia, and insomnia. Treatment priority is descent to lower altitude. Life-threatening complications include (1) high-altitude pulmonary edema (HAPE), characterized by dyspnea, hypoxia, cyanosis, wet lung sounds, and possibly blood-tinged sputum; and (2) high-altitude cerebral edema (HACE), characterized by severe headache, ataxia, confusion, and decreased level of consciousness.

ALL EMTS

- Establish primary management, including oxygen by nasal cannula.
- Descend to lower altitude.

INTERMEDIATES AND PARAMEDICS

- Consider isotonic IV, titrated to LOC, HR, and end-organ perfusion.

PARAMEDICS

- Administer albuterol 2.5-5 mg nebulized, if wheezing is present.
- Contact medical control for possible furosemide orders.

NAUSEA AND VOMITING

DESIGNATION OF CONDITION

Intermediates and paramedics may administer ondansetron (Zofran) to patients experiencing nausea, including nausea associated with motion sickness or morphine administration.

INTERMEDIATES AND PARAMEDICS

Administer ondanestron:

- Adults: 4 mg IV or IM
- Children: 0.1mg/kg IV or IM

OVERDOSE: GENERAL

DESIGNATION OF CONDITION

The patient will be symptomatic (altered mental status, etc.) with history and/or evidence of ingestion, inhalation, or injection of prescription, nonprescription, or street drugs.

ALL EMTS

- Establish primary management.
- Assess BGL.
- Identify substance and estimate amount and time ingested, inhaled or injected.
- Collect any drugs and/or containers and transport with the patient.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end organ perfusion.
- Consider naloxone (per “Overdose: Narcotic” protocol) and dextrose (per “Diabetic Emergencies” protocol) as appropriate.
- If prompt improvement does not occur, see “Unconscious, Cause Unknown” protocol.

PARAMEDICS

- Monitor cardiac rhythm and provide rhythm-specific treatment per protocols.
- Obtain 12-lead ECG.
- See specific protocols for narcotic overdose and tricyclic antidepressant overdose.
- For beta blocker or calcium channel blocker overdose, administer glucagon 1-3 mg IV/IO every 3-5 min to desired response or maximum dose of 3 mg.
- For calcium channel blocker overdose with hypotension (unresponsive to fluid bolus) and/or dysrhythmias, administer calcium chloride 1 g (10 ml of 10%) slow IV/IO push over 10 min.
    - Do not administer calcium to patients on digoxin.

OVERDOSE: NARCOTIC

DESIGNATION OF CONDITION

The patient will present with evidence of ingestion, inhalation, or injection of narcotics, and associated signs and symptoms (e.g., altered mental status, respiratory depression, pinpoint pupils, etc).

ALL EMTS

- Establish primary management. Give special attention to BVM ventilation if needed.
- Assess BGL.
- Administer naloxone 2 mg IN (1 mg in each nare), or in 0.4 mg increments IM titrated to LOC and/or respiratory improvement.
- Patient may awaken quickly and be combative. Be prepared to restrain patient if necessary.

INTERMEDIATES AND PARAMEDICS

- Establish IV access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.
- Administer naloxone.
  - Adult: If unconscious/'unresponsive, administer 2 mg IV. For mild to moderate overdose (lethargic, etc.), administer in 0.4 mg increments titrated to improvement in LOC and/or respirations.
  - Pediatric (age < 12 yr): 0.4 mg IV.
  - Repeat as needed (high doses may be required for synthetic narcotics).
  - If unable to establish IV access, administer IN or IM. In cases of suspected multi-substance abuse, consider administration of sufficient amount of medication to restore adequate depth and rate of respirations.
- If prompt improvement does not occur, see "Unconscious, Cause Unknown" protocol.

PARAMEDICS

- Monitor cardiac rhythm and provide rhythm-specific treatment per protocols.
- Consider endotracheal intubation as necessary.

OVERDOSE: TRICYCLIC OR HETEROCYCLIC ANTIDEPRESSANT

DESIGNATION OF CONDITION

Patient will have ingested a tricyclic or heterocyclic antidepressant in excess of prescribed amount. Early signs may include tachycardia, nystagmus, wide QRS, and terminal R wave in lead aVR.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Establish IV access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.
- Consider multiple lines.

PARAMEDICS

If the patient exhibits any of the following signs, administer sodium bicarbonate 1 mEq/kg bolus, followed by sodium bicarbonate infusion (1 mEq/kg in 1 l of isotonic fluid). Titrate infusion to blood pressure if hypotensive; otherwise administer 500 ml bolus, then TKO.

  - HR > 130.
  - QRS > 0.12 sec.
  - Ventricular dysrrhythmias.
  - Hypotension.
- Manage seizures with benzodiazepines per “Seizure” protocol.
- Contact medical control.

SEIZURE

DESIGNATION OF CONDITION

The patient will have experienced convulsions. Most seizures end within 5 min, followed by a postictal state, with altered mental status or unconsciousness, of varying duration. Status epilepticus exists when seizure activity continues > 10 min or multiple seizures recur without a return to normal mental status. The patient may have a history of seizure disorder and may have appropriate prescription drugs.

ALL EMTS

- Establish primary management.
- Protect patient from injury during seizure.
- Obtain history of seizure activity, including onset, duration, type, medication taken and prior history.
- Assess BGL and treat per “Diabetic Emergencies” protocol if < 60 mg/dl.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, end-organ perfusion.

PARAMEDICS

- For status epilepticus or for patients who are having a witnessed seizure, administer diazepam or midazolam.
  - Diazepam : Adult, 2-10 mg slow IV/IO push. Pediatric, 0.1-0.2 mg/kg slow IV/IO push or 0.3-0.5 mg/kg PR.
  - Midazolam: Adult, 1-5 mg slow IV/IO push or IM. Pediatric, 0.05 mg/kg slow IV/IO push, IM, or PR, up to 5 mg. Midazolam may be given IN at 1 mg per 5 kg to a total of 7.5 mg; give half in each nare.
- Contact medical control for diazepam > 10 mg in adults or 5 mg in children, or for midazolam > 5 mg.
- See “Eclampsia” protocol for treatment of pregnancy-related seizures.

STROKE

DESIGNATION OF CONDITION

The patient will present with signs, symptoms, and history consistent with stroke. Common signs and symptoms include brief loss of consciousness, altered mental status or coma, HTN, irregular breathing, unequal/asymmetrical pupils, dysphasia, and hemiplegia. Headache, if present, may be a sign of hemorrhagic stroke. The patient may have a history of TIAs or stroke.

ALL EMTS

- Establish primary management.
- Obtain a detailed history, including time of onset.
- Transport promptly to a facility capable of treating acute stroke.
- Do not hyperventilate unless the patient exhibits clear signs of herniation (unequal pupils).
- Do not administer ASA because of increase risk of bleeding in hemorrhagic stroke.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Intubate as needed for airway protection.

TOXIC EXPOSURE: GENERAL

DESIGNATION OF CONDITION

The patient will present with signs, symptoms, and history suggesting exposure to poison. See specific protocols for carbon monoxide poisoning, organophosphate poisoning, and overdoses.

Poison Center New Mexico is not recognized as online medical control. Contact Poison Center by telephone at 800-222-1222 for help in identifying substances and providing treatment guidelines to the receiving facility.

ALL EMTS

- Establish primary management.
- Identify substance and estimate amount ingested, inhaled, injected, or absorbed.
- If altered LOC, assess BGL.
- Initiate rapid transport.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Initiate cardiac monitoring and provide rhythm-specific treatment per protocols.
- Intubate as needed for airway protection.

TOXIC EXPOSURE: CARBON MONOXIDE

DESIGNATION OF CONDITION

Carbon monoxide is a colorless, odorless gas produced by incomplete combustion of hydrocarbons or carbon-based fuels, including natural gas, propane, and gasoline. Carbon monoxide victims may appear to be intoxicated and may complain of headache, dizziness, and nausea. Pulse oximetry may give a false high SpO2.

Remember your own safety first. Wearing SCBA into a confined space may be appropriate. Always remove the victim from the source before beginning treatment. Pulse oximetry will not provide accurate readings of tissue oxygenation.

ALL EMTS

- Establish primary management.
- Administer high-flow oxygen (nonrebreather mask at 12-15 lpm) or assist ventilations with BVM and 100% oxygen regardless of level of respiratory distress.
- Ensure the safety of asymptomatic people at the scene before transport.

INTERMEDIATES AND PARAMEDICS

- If wheezing is detected, administer albuterol via nebulizer.
  - Adult: 5-10 mg.
  - Child: 5 mg.
- Repeat albuterol as needed. Some patients may need continuous nebulizer treatment throughout transport.
- Cardiac monitoring is required for patients receiving > 10 mg of albuterol.
- Obtain 12-lead ECG for all suspected exposures.

TOXIC EXPOSURE: ORGANOPHOSPHATE

DESIGNATION OF CONDITION

The patient will present with signs, symptoms, history, and/or evidence of exposure to an organophosphate substance. Classical presentation is summarized with the mnemonic “SLUDGE”: salivation, lacrimation, urination, defecation, gastric irritability, emesis.

Remember your own safety first. Organophosphates can be absorbed via the respiratory tract, mucous membranes, and skin. Wearing SCBA into a confined space may be appropriate. Always remove the victim from the source before beginning treatment. Patients should be decontaminated with soap and water as soon as possible and cared for in a well-ventilated area. All body fluids should be stored in closed containers.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to LOC, HR, and end-organ perfusion.

PARAMEDICS

- If patient presents with “SLUDGE” signs and symptoms, administer atropine 1 mg every 1-3 min, titrated to drying of secretions. A large total dose may be required.
- Intubate as needed for airway protection.

UNCONSCIOUS, CAUSE UNKNOWN

DESIGNATION OF CONDITION

The patient will have a pulse, but will be unconscious from an undetermined cause.

ALL EMTS

- Establish primary management.
- Invasive airway devices (LMA, ETT) should not be considered until hypoglycemia and/or narcotic overdose have been ruled out.
- If trauma is suspected, consider spinal motion restriction.
- Assess BGL.
- Initiate cardiac monitoring.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.
- If BGL < 60 mg/dl, administer dextrose per “Diabetic Emergencies” protocol.
- If no change, administer naloxone per “Overdose: Narcotic” protocol.
- If the patient fails to respond to the above treatments and is in a deep state of unconsciousness with no gag reflex, consider advanced airway (paramedics).

6 OBSTETRIC / GYNECOLOGIC EMERGENCIES

CHILDBIRTH: BREECH PRESENTATION

DESIGNATION OF CONDITION

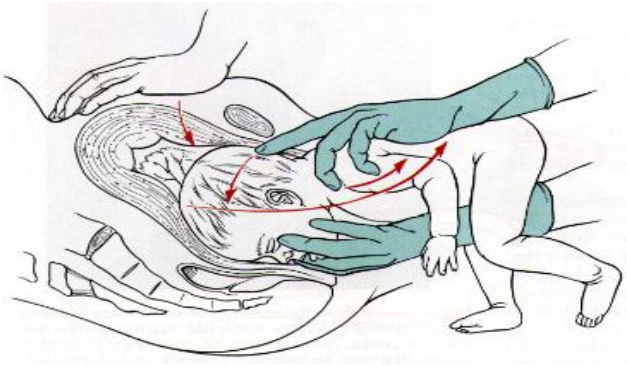
Presentation in which the buttocks of the fetus present, rather than the head.

ALL EMTS

- Establish primary management.
- Support the infant's body. Delivery of the lower extremities is generally easily accomplished. If head delivers spontaneously, proceed as with normal delivery.
- Once the umbilical cord is visualized, pull it gently down and out of the vagina.
- After the umbilicus has been delivered, the head must be delivered in 3-5 min.
- Deliver the shoulders by depressing the buttocks and extracting the anterior shoulder with a gloved finger. Then raise the baby gently by the legs and extract the posterior shoulder.
- The infant will then usually rotate so that the back faces anteriorly.
- Initiate rapid transport as soon as possible.
- Make radio report to receiving hospital as early as possible.

PARAMEDICS

- If head does not deliver within 4-6 min, perform the Mauriceau maneuver as follows (see illustration below):
  - Place body of infant over forearm.
  - Place gloved hand on the fetal maxilla and apply enough pressure to tuck and flex the head. Do not pull the head.
  - Place the other hand gently over the fetal occiput to aid in flexion.
  - An assistant should administer suprapubic pressure downward and caudally to assist with the delivery.



Mauriceau Maneuver

CHILDBIRTH: LIMB PRESENTATION

DESIGNATION OF CONDITION

Presentation in which one or more extremities of the fetus presents, instead of the head.

ALL EMTS

- Establish primary management.
- Place mother in knee-chest position.
- Initiate rapid transport.
- Make radio report to receiving hospital as early as possible.

CHILDBIRTH: NORMAL IMMINENT DELIVERY

ALL EMTS

- Establish primary management.
- Create field for delivery.
- If membranes are ruptured, look for meconium, prolapsed cord, or nuchal cord and treat accordingly.
- Treat infant with drying, warming, positioning, suctioning, and stimulation.
- Provide blow-by oxygen as needed.
- If the baby's respirations, heart rate, and/or activity are abnormal, follow "Neonatal Resuscitation" protocol.
- Clamp the umbilical cord approximately 7 in and 10 in from the baby and cut between clamps.
- Clean, dry, and wrap the baby in a clean sheet, towel, or blanket; cover head.
- Obtain Apgar score 1 min and 5 min after delivery.
- Gently deliver the placenta; do not pull on umbilical cord
- Gently massage the fundus after delivery of placenta.
- Prepare for transport and make early radio report to receiving hospital.

INTERMEDIATES AND PARAMEDICS

- For the mother, establish IV access with large-bore catheters and isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

CHILDBIRTH: NUCHAL CORD

DESIGNATION OF CONDITION

On delivery of the baby's head, the umbilical cord is observed to be wrapped around the neck.

ALL EMTS

- Attempt to gently loosen the cord with fingers and loop over the baby's head.
- If unsuccessful, immediately clamp, cut, and remove the cord from the neck.
- Swift delivery is critical for fetus survival.

CHILDBIRTH: PROLAPSED CORD

DESIGNATION OF CONDITION

Expulsion of the umbilical cord before delivery of the fetus.

ALL EMTS

- Establish primary management.
- Place mother in knee-chest position.
- Insert gloved hand into vagina and gently lift baby's head off of the cord until pulsations are felt; if effective, maintain positioning.
- If the cord is exposed, cover with gauze soaked in warm sterile saline.
- Initiate rapid transport.
- Make radio report to receiving hospital as early as possible.

CHILDBIRTH: SHOULDER DYSTOCIA

DESIGNATION OF CONDITION

One or both of the baby's shoulders hinders delivery of the body after delivery of the head. Typically the anterior shoulder is impacted behind the mother's pubic symphysis. After delivery of the head, the head may retract tightly against the perineum ("turtle sign").

ALL EMTS

- Establish primary management.
- Initiate rapid transport as soon as possible.
- Make radio report to receiving hospital as early as possible.

PARAMEDICS

- Flex the mother's legs sharply toward her abdomen (McRoberts maneuver).
- Have an assistant apply suprapubic (*not* fundal) pressure.
- The combination of the McRoberts maneuver and suprapubic pressure is usually enough to free the anterior shoulders.

CHILDBIRTH: SPONTANEOUS RUPTURE OF MEMBRANES

DESIGNATION OF CONDITION

Rupture of the amniotic sac in pregnancy. A normal part of labor, but preterm premature rupture of membranes (before week 37 of gestation) increases risk of intrauterine infection and preterm delivery.

ALL EMTS

- Establish primary management.
- Assess fetal heart rate for a full minute after SROM.
- If prolapsed cord occurs, treat per “Prolapsed Cord” protocol.
- No further manipulation should be performed unless delivery is imminent.
- Initiate rapid transport.

- Make radio report to receiving hospital as early as possible.

NEONATAL RESUSCITATION

DESIGNATION OF CONDITION

The newborn presents with depressed respirations, heart rate, and/or activity immediately after delivery.

ALL EMTS

- Establish primary management
- Do not delay delivery if birth appears imminent.
- After delivery of head, if meconium noted, suction mouth and hypopharnyx with bulb syringe when the head is at the perineum.
- Complete delivery.
- Thoroughly suction the airway.
- Warm and dry baby.
- Place in slight Trendelenburg and open/maintain airway.
- Administer aggressive tactile stimulation of feet and/or back.
- If apneic, gasping, or with persistent central cyanosis, or HR < 100, administer high-flow blow-by oxygen.
- If no improvement, ventilate with BVM and 100% oxygen.
- If HR < 60, or if HR < 80 despite oxygenation/ventilation, begin CPR.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution.
- If BGL < 60 mg/dl, administer dextrose 1 g/kg (10 ml/kg of D10W) over 20 min.
    - Make D10 W by mixing 2 ml/kg D50W with 8 ml/kg NS (yield is 1 g dextrose per 10 ml fluid).
- If newborn exhibits respiratory depression unresponsive to interventions so far and nonaddict mother has used narcotics within the past 4 hr, consider naloxone 0.1 mg/kg IV/IO.
    - Do not administer naloxone to newborn of addict mother unless apneic or in respiratory distress.

PARAMEDICS

- If BVM ventilation is ineffective, intubate.
- If HR < 80 despite oxygenation, ventilation, and CPR, administer epinephrine 0.01-0.03 mg/kg (0.1-0.3 ml/kg of 1:10,000) IV/IO.

OBSTETRIC INTERFACILITY TRANSFER

OBSTETRIC INTERFACILITY TRANSFER: GENERAL

DESIGNATION OF CONDITION

General guidelines on interfacility transfer of pregnant patients.

PARAMEDICS

- Patients are to be transported in left lateral recumbent position whenever possible to relieve/prevent supine hypotensive syndrome and to improve maternal/fetal perfusion. If this position is not possible, tilt the pelvis (place an object under backboard or apply manual traction to displace the uterus to the side).
- Place safety belts over the chest (below the breasts and above the gravid uterus) and over the thighs.
- Administer oxygen by nasal cannula at 2-4 LPM or by NRB mask at high flow if indicated.
- Assess fetal heart tones (FHTs) by Doppler (if available) before transport, during transport, and upon arrival at the receiving facility. If tocolytics are being administered and/or there is reported or suspected fetal distress, assess FHTs at least every 15 min.
- Maintain a large-bore IV with NS or LR during transport.
- Monitor contractions by palpation and document frequency and duration.
- Administer the following drugs as indicated:
  - Naloxone 0.4-1.0 mg IV or IM PRN for narcotic-induced respiratory depression.
  - Magnesium sulfate (see “Obstetric Interfacility Transfer: Magnesium Sulfate” protocol).

OBSTETRIC INTERFACILITY TRANSFER: CONSULTATION

DESIGNATION OF CONDITION

The following conditions require direct consultation with the receiving perinatologist or the labor and delivery unit charge nurse at the receiving facility.

- Maternal temperature >38° C
- Maternal HR > 110
- Maternal systolic BP >140 or <90
- FHT >160 or <120
- Active or increased vaginal bleeding
- Cervical dilation >3 cm by history (no exam will be performed by EMS personnel)
- New diagnosis of spontaneous rupture of membranes by history
- Contractions with any of the following:
  - Frequency < 10 min
  - Duration > 45 sec
  - Moderate to strong intensity by palpation
  - Medication toxicity

OBSTETRIC INTERFACILITY TRANSFER: PLACENTA PREVIA / ABRUPTIO

DESIGNATION OF CONDITION

The patient is being transferred with placenta previa or abruptio.

PARAMEDICS

- Observe all applicable protocols.
- Consult with receiving perinatologist if active bleeding is present.
- Establish 2 large-bore IVs with blood administration tubing, if possible.
- If typed and crossed packed red blood cells are being administered, monitor ordered infusion rate or administer as fast as patient's condition requires/ permits.
    - If blood administration is being initiated upon your arrival at the transferring facility, limit intake in first 15 min to 50 ml and monitor the patient for the following signs and symptoms: back or chest pain, hypotension, increase in temperature > 1.8° F, pain at the infusion site, tachycardia, tachypnea, wheezing, cyanosis, hives or rashes. If any of these occur, stop the transfusion and keep the vein open with NS. Notify the patient's physician and the blood bank.
- Ensure that a Foley catheter is in place prior to transport.

OBSTETRIC INTERFACILITY TRANSFER: HYPERTENSION

DESIGNATION OF CONDITION

The patient is being transferred with pregnancy-induced hypertension, with or without pre-eclampsia or eclampsia.

PARAMEDICS

- Observe all applicable protocols.
- Ensure that a Foley catheter is in place prior to transport.
- Ensure that patient has been medicated with magnesium sulfate prior to transport.
- Contact accepting perinatologist prior to transport for:
    - Maternal BP > 140 systolic or > 110 diastolic, or MAP >135
    - Urine output < 30 ml/hr at referring facility
    - Presence of signs/symptoms listed under "Consultation" above
- Monitor patient for dizziness, headache, epigastric pain, abdominal or uterine pain, uterine contractions, tinnitus, or spontaneous mucosal hemorrhage.

OBSTETRIC INTERFACILITY TRANSFER: MAGNESIUM SULFATE

DESIGNATION OF CONDITION

Paramedics may administer magnesium sulfate to pregnant patients as defined in these protocols or with direct medical control. Magnesium sulfate is the drug of choice in pre-eclampsia and in preterm labor with contraction frequency ≥ 10 min.

Magnesium sulfate is a CNS depressant and not an antihypertensive. It is thought that it exerts part of its pharmacological effect by retardation of motor end plate conduction and transmission across the neuromuscular junction. Half-life is < 5 min and 90% may be absent from the intravascular space within 30-45 min. It is completely

excreted by the kidneys and urine output > 30 ml/hr must be maintained to avoid neuromuscular blockade of voluntary and respiratory muscles. Therapeutic serum level is 5-8 mg/dL and toxic levels is >10 mg/dL, although toxic effects may be noted before this level is reached..

PARAMEDICS

- Administer loading dose of 4 g magnesium sulfate in 250 ml NS IVPB over 10 min.
  - More rapid administration may result in vomiting or cardiovascular or respiratory depression, while excessively long administration times may result in subtherapeutic serum levels.
- Magnesium sulfate may be continued throughout transport for either pre-term labor or pre-eclampsia. The usual rate is 2-3 g/hr.
- Monitor RR and urinary output, and assess deep tendon reflexes (DTRs) every 15 min. If RR < 14, urinary output <30 ml/hr, or DTRs < 1, reduce or discontinue magnesium sulfate.
- Neuromuscular blockade most commonly presents as respiratory muscle weakness and paralysis, and is preceded by the loss of DTRs. If this occurs, stop $MgSO_4$ and administer calcium chloride 1 g (10 ml of 10%) over 10 min.
- If clonus is present, contact medical control for orders to increase infusion rate or administer additional 2 g doses.

PRE-ECLAMPSIA / ECLAMPSIA

DESIGNATION OF CONDITION

Pre-eclampsia is hypertension and peripheral edema associated with pregnancy. Eclampsia is the presence of seizures and/or coma in pregnant patients with hypertension.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- For seizures, administer diazepam or midazolam per “Seizure” protocol.
- Follow benzodiazepines with magnesium sulfate 4 g in 250 ml NS over 15-30 min IV/IO piggyback.
  - Stop administration of magnesium when knee reflexes are depressed.
  - In case of magnesium overdose (with respiratory depresion, hypotension, and/or areflexia), administer calcium chloride 1 g (10 ml of 10%) over 10 minutes IV/IO piggyback (if transport time still > 15 min).

VAGINAL HEMORRHAGE, POST-DELIVERY

DESIGNATION OF CONDITION

Heavy and/or continuous vaginal bleeding after delivery.

ALL EMTS

- Establish primary management.
- Place mother in Trendelenburg position, keep warm, and give nothing by mouth.
- After delivery of the placenta, aggressively massage the fundus by palpating the abdomen.
- Encourage mother to nurse baby.
- Place dressings to the external vaginal area. Do not place anything inside the vagina.

INTERMEDIATES AND PARAMEDICS

- Enroute, establish IV/IO access with large-bore catheters and isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.
- Administer aggressive fluid resuscitation as needed.

7 PSYCHOLOGICAL / BEHAVIORAL EMERGENCIES

PSYCHIATRIC PATIENT TRANSPORT

DESIGNATION OF CONDITION

The patient presents with a psychiatric or behavioral complaint and transport to a mental health facility is requested.

ALL EMTS

- All psychiatric patients will be transported directly to a hospital emergency department for evaluation unless, after assessing the patient and consulting with medical control, the EMT believes that a mental health facility will unquestionably accept the patient.

PATIENT RESTRAINT

DESIGNATION OF CONDITIOIN

The patient is 16 yr old or older, requires transport to a health care facility, and based on assessment is believed to pose a danger to himself or others.

ALL EMTS

- Responder safety is the first priority.
  - Do not enter or remain in any situation that poses a threat to the safety of the crew. The crew should enter and leave the scene together.
  - Asessment of scene safety is a shared responsibility.. Each EMT has the authority to decline to enter or remain in a potentially dangerous scene. If any crew member elects to leave the scene, the entire crew should leave immediately.
  - Summon law enforcement at the first implication of danger.
- Patient safety is the second priority. Patients in dangerous or threatening environments should be protected and/or moved to a safe place before further care is rendered.
- Establish primary management.
- If involuntary transport is necessary, ensure compliance with the New Mexico emergency transportation statue (see appendix).
- Use the least restrictive or invasive method of restraint that will protect the patient and others. Attempt verbal de-escalation first.
- Use physical restraints in a humane manner, affording the patient as much dignity as possible. Explain to the patient and family that restraints are necessary to prevent the patient from hurting himself or someone else.
- Apply restraints to at least 2 extremities (opposite hand and foot).
- Never place a restrained patient in a prone position, because of the risk of positional asphyxia and lack of proper access for assessment and treatment. If a patient is found restrained in a prone position or in hobble restraints, place the patient on his side and apply appropriate EMS restraints.
- Continually monitor and document the restrained patient’s airway, breathing, and circulation status. Never leave a restrained patient unattended.
- Document the patient's mental status, lack of response to verbal interventions, the need for restraint, the method of restraint used, the results, any injuries to patient or EMS personnel resulting from the restraint efforts, the need for continued restraint, and methods of monitoring the restrained patient.

PARAMEDICS

- If patient is at least 16 years old, administer haloperidol 5 mg IM or slow IV push. Repeat every 10 min to desired level of sedation or a maximum total dose of 15 mg. Contact medical control if higher doses are required.
  - Haloperidol is contraindicated for patients with a known allergy to the drug or drug class, patients with a history of neuroleptic malignant syndrome or Parkinson’s disease, pregnant patients,

- Use haloperidol cautiously in patients with a known seizure disorder. Reduce dosage for elderly or debilitated patients and patients with impaired hapatic or renal function.
- Extrapyramidal reactions (dysphoria, akathesia, or dystonia) may appear up to 2 weeks after haloperidol administration; see “Extrapyramidal Reaction,” below.

EXTRAPYRAMIDAL REACTION

DESIGNATION OF CONDITION

A response to a medication, typically a phenothiazine (e.g.; Thorazine, Compazine) or a butyrophenone (e.g.; Haldol, droperidol), marked by acute dystonia (muscle spasm) or akathisia (motor restlessness).

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Enroute, establish IV access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Administer diphenhydramine IV or IM.
  - Adult: 25-50 mg.
  - Pediatric: 1 mg/kg.

8 TRAUMA AND BURNS

AIRWAY MANAGEMENT FOR THE TRAUMA PATIENT

DESIGNATION OF CONDITION

The trauma patient is unable to adequately maintain his own airway.

ALL EMTS

- Establish primary management.
- Provide spinal motion restriction as appropriate.

PARAMEDICS

- If the patient is not breathing adequately or is in respiratory arrest, spinal motion restriction should be maintained and tracheal intubation performed without extension or flexion of the head.
- Orotracheal intubation is preferred for patients with head or face trauma.
- Nasotracheal intubation with spinal motion restriction should be considered for the patient who is unresponsive but breathing.
- If attempts to intubate the patient in spinal motion restriction are unsuccessful, consider basic airway procedures with BVM, LMA, intubation attempt with gum-elastic bougie, or surgical cricothyrotomy.

AMPUTATION

DESIGNATION OF CONDITION

The patient will present with an amputated body part. Often, amputated parts can be salvaged, with optimal results when reattachment is achieved within a few hours of the injury.

ALL EMTS

- Establish primary management.
- Enroute, consider rinsing the amputated parts with NS to remove debris. Do not scrub. Wrap loosely in saline-moistened gauze. Place in plastic bag or emesis basin.
- Do not pour water into bag and do not cool directly with ice. Consider placing cold packs outside bag for gentle cooling.

INTERMEDIATES AND PARAMEDICS

- Enroute, establish IV access with 1-2 large-bore catheters and isotonic solution. Titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- If the trauma is isolated, administer morphine 2-10 mg or fentanyl 50-200 mcg slow IV push as needed for pain. Contact medical control for orders if additional morphine is necessary

ASSAULT / RAPE

DESIGNATION OF CONDITION

The patient will present with a complaint of assault or sexual assault.

ALL EMTS

- Confirm law enforcement activation and assure scene safety.
- Establish primary management.
- Comfort and reassure the patient.
- Treat injuries as appropriate.
  - Genital/anal examination is not appropriate unless uncontrolled life-threatening external hemorrhage is suspected.
- Protect and preserve evidence. Encourage the patient not to change clothes, wash, bathe, or urinate.
- Notify receiving hospital of patient for Sexual Assault Nurse Examiner (SANE).
- Contact protective services (800-242-3260) in all cases of suspected or confirmed child or elder abuse or sexual assault.

BITE: ANIMAL OR HUMAN

DESIGNATION OF CONDITION

The patient will present with a complaint of having been bitten by an animal or another person. Bites are rarely a threat to life or limb; more limbs are lost because of infection and inappropriate treatment than because of bites themselves.

ALL EMTS

- Establish primary management.
- Remove constrictive clothing.
- Gently irrigate wound with sterile saline and dress.
- Notify animal control.
- Encourage patient to be transported.
- If patient refuses transport, advise to seek further medical attention.

INTERMEDIATES AND PARAMEDICS

- If shock potential is present, enroute, establish IV access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

BITE: SNAKE

DESIGNATION OF CONDITION

The patient will present with a complaint of having been bitten by a snake. More limbs are lost because of inappropriate treatment with ice and tourniquets than because of bites themselves.

ALL EMTS

- Establish primary management.
- Remove jewelry from affected limb.
- Flush wound with sterile saline. Immobilize affected area at heart level. Keep patient calm.
- Apply constricting band 1-2 in wide 3 in above the bite. Band should not be too tight; distal pulse should be present and it should be possible to easily work one finger under the band (lymphatic constriction only).
- Mark boundaries of inflammation, if present.
- Make early report to hospital to assure antivenin resources.
- Do not delay transport, but try to determine species of snake; photograph snake if possible.

INTERMEDIATES AND PARAMEDICS

- Enroute, establish IV access with isotonic solution and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- Administer morphine 2-10 mg or fentanyl 50-200 mcg IV, titrated as needed for pain control. Contact medical control if higher dose is necessary.

BURNS

DESIGNATION OF CONDITION

The following terms are often used to describe burns.

- Superficial: red skin (like sunburn).
- Superficial partial thickness: red skin, often with blisters.
- Deep partial thickness: blistering (very painful), often difficult to distinguish from full thickness.
- Full thickness: all skin layers and possibly deeper structures involved; may be pain-free, often lacks blanching and tenderness, appears dry, leathery, often charred.

Rules of Nines (for estimating body surface area)

(Palm of patient's hand represents 1% of body surface area)

	Adult	**Child**
Head	*9%*	*18%*
Chest/Back	*18%/18%*	*18%/18%*
Arm	*9%*	*9%*
Leg	*18%*	*13.5%*
Pubis/perineum	*1%*	*1%*

Patients with respiratory problems from smoke or chemical inhalation, respiratory tract burns, or burns involving the face, head or chest are at an increased risk for airway compromise, hypothermia, and later shock and infection.

ALL EMTS

- When burns are associated with severe trauma, trauma protocols will supersede burn protocols.
- Establish primary management.
- Gently wash burned area with water.
  - For chemical burns, brush off dry chemicals, identify contaminant, and flush with water for 10 min (unless contraindicated). Contact poison control if needed at 800-222-1222.
- Estimate depth and percent BSA injured.
- Partial-thickness burns < 10% BSA in adults or < 5% BSA in children may be cooled with water for 10-15 min.
- Cover with sterile burn sheets and keep patient warm.
- Contact medical control to discuss patient destination decisions, as appropriate.

INTERMEDIATES AND PARAMEDICS

- Enroute, establish IV/IO access with isotonic solution (LR preferred). Titrate to maintain LOC, HR, and end-organ perfusion. If > 20% BSA involved, administer 20 ml/kg bolus and repeat as necessary.
- Do not place IV/IO in burned area unless absolutely necessary.

PARAMEDICS

- For burns involving airway or face, consider intubation during transport from scene or before interfacility transfer.
- Administer morphine 2-10 mg and/or fentanyl 50-200 mcg IV/IO as needed for pain and/or anxiety.
- Manage airway aggressively in the presence of a respiratory burn with signs of airway compromise. Refer to “Airway Management: Paramedic Guidelines” and “Post-Intubation Sedation.”
- Contact medical control for additional pain medication orders.

BURNS OLDER THAN 1 HOUR

DESIGNATION OF CONDITION

The patient will have sustained burns more than 1 hr before first contact with EMS. This includes interfacility transfers as well as incidents in which EMS activation is significantly delayed.

ALL EMTS

- Establish primary management.

INTERMEDIATES AND PARAMEDICS

- Ensure airway is secured appropriately before transfer. If disagreement exists regarding airway management, encourage the sending physician to contact the receiving physician. The service medical director may also be contacted if issues remain unresolved after physician-to-physician consult.
- LR is preferred over NS for burns
- For interfacility transfer of patients with burns over ≥ 20% BSA, ensure that a Foley catheter is in place before initiating transfer. Monitor VS breath sounds, and intake/output. Titrate fluids to achieve urinary output of 30-50 ml/hr in adults or > 1 ml/kg/hr in children < 30 kg.
- Keep the patient dry and warm.

EYE INJURIES

DESIGNATION OF CONDITION

The patient will present with eye pain due to superficial corneal abrasion, foreign body, mace or pepper spray exposure, or welder's burns (UV keratitis), or ruptured globe.

ALL EMTS

- Establish primary management.
- Assess for obvious trauma to globe or cornea. If found, do not irrigate.
- If globe is not ruptured, gently irrigate eyes with NS for at least 15 minutes or until 1 l of NS has been used.
  - Do not be concerned with removal of contact lenses in the field unless broken. Treat with irrigation like any foreign body.
  - In case of exposure to law-enforcement chemical agents such as pepper spray, transport may not be required following irrigation if eye irritation is relieved.
- Consider covering both eyes to help decrease eye movement.
- Do not patch penetrating eye injury. May cover without pressure on the globe.

FRACTURES

DESIGNATION OF CONDITION

Signs and symptoms may include pain, tenderness, deformity, loss of use of injured extremity, swelling, crepitus, discoloration, exposed bone ends, and/or absent distal pulses with associated extremity trauma. Treat significant dislocations, strains and sprains as fractures until proven otherwise.

ALL EMTS

- Establish primary management.
- If spinal injury suspected, immediately provide spinal motion restriction (if indicated) and transport. If the situation dictates rapid extrication with partial spinal motion restriction, try to accomplish full spinal motion restriction en route.
- If patient is stable or if injury is isolated:
  - Splint injured limb in position found. If limb must be repositioned for extrication or transport, gently straighten and splint. Immobilize the joints proximal and distal to the injury. Check distal pulses and sensation before and after splinting, and reassess frequently.
  - If extremity is severely angulated with absent pulses, gently straighten to anatomically correct positioning. Reassess circulation and sensation after repositioning and after splinting.
  - Most isolated hip and high femur fractures are best managed without the use of a rigid device such as a backboard or vacuum splint. Carefully placing the patient on a soft cot will dramatically increase comfort and minimize any pain experienced during transport.

INTERMEDIATES AND PARAMEDICS

- Enroute, establish IV/IO access on uninjured side with isotonic fluid and titrate to maintain LOC, HR, and end-organ perfusion.

PARAMEDICS

- For hemodynamically stable patients with significant pain due to isolated extremity trauma, administer morphine 2-10 mg or fentanyl 50-200 mcg IV/IO as needed. Contact medical control for orders if additional analgesia is needed.

SPINAL MOTION RESTRICTION

DESIGNATION OF CONDITION

Spinal motion restriction (SMR) is indicated for the following trauma patients:

- Blunt-trauma patients with significant mechanism of injury, altered level of consciousness, neurological deficit, or midline cervical-spine and/or vertebral column pain.
    - Patients with significant distracting injury or intoxication may not be able to fully perceive and appreciate vertebral column pain; use SMR accordingly.
- Penetrating-trauma patients if there are signs of neurological deficit at or below the level of injury, or if there is suspicion of spinal injury based on location of the wound.

SMR may not be required if the patient does not have a significant distracting injury, is not intoxicated or under the influence of mind altering drugs/medications, has no evidence of closed head injury, and has no vertebral column pain or discomfort on self-evaluation, on palpation, or on active movement.

Remember that SMR is not a benign procedure. The EMT assumes full airway control for the patient in SMR. Unconscious patients and patients with spinal cord injury left in SMR may develop decubitus ulcers within hours.

ALL EMTS

- When practical, SMR should include application of a properly sized rigid extrication collar.
- A stable and cooperative patient should be extricated onto a long spine board using manual support and a properly sized rigid extrication collar.
- Critical trauma patients should be extricated and placed in SMR according to rapid extrication standards (PHTLS).
- An unconscious patient should be extricated rapidly using equipment available and appropriate for the situation.
- If a combative or uncooperative patient is difficult to place in SMR and mechanism suggests low risk of thoracic or lumbar fracture (e.g. fall from standing), a rigid C-collar without long spine board should be used.
- A rigid C-collar without long spine board is appropriate when mechanism suggests low risk of thoracic or lumbar fracture and patient is free of thoracic/lumbar pain/tenderness, neurological deficit, or other signs/symptoms of thoracic/lumbar spine injury.

TRAUMA: BLUNT

DESIGNATION OF CONDITION

General comments on management of blunt trauma patients.

ALL EMTS

- Establish primary management.
- Initiate transport as soon as possible.
  - Longer scene times should occur only in rare situations (e.g. unsafe scene, difficult patient access, precarious airway requiring prompt invasive intervention, multiple patients, combative patient requiring arrival of extra hands). Prolongation of scene time is unacceptable to await arrival of helicopter (rendezvous en route when necessary), to start lines at the scene when ground transport is available, or to await arrival of a paramedic.

INTERMEDIATES AND PARAMEDICS

- Establish IV/IO access with isotonic solution and large-bore catheters. Administer 20 ml/kg bolus, reassess, and repeat as needed. Titrate to maintain LOC, HR, and end-organ perfusion.
- For critically unstable patients, see “TRAUMA STAT” protocol.

TRAUMA: PENETRATING

DESIGNATION OF CONDITION

General comments on management of penetrating trauma patients. This includes all penetrating trauma to the head with loss of consciousness or deteriorating neurological signs; penetrating trauma to the neck, chest, abdomen, back, or groin; and penetrating trauma to an extremity proximal to the elbow or knee.

ALL EMTS

- Ensure scene safety and attempt not to disturb evidence.
- Establish primary management.
- Perform spinal motion restriction only if focal neurological deficit is noted below the injury, if you have a high index of suspicion of a spinal injury, or the patient is unconscious or severely obtunded. Most penetrating trauma patients will not require spinal motion restriction, except GSW to the chest and abdomen, in which case risk of spinal injury is high.
- Initiate transport as soon as possible.
    - Longer scene times should occur only in rare situations (e.g., unsafe scene, difficult patient access, precarious airway requiring prompt invasive intervention, multiple patients, combative patient requiring arrival of extra hands). Prolongation of scene time is unacceptable to await arrival of helicopter (rendezvous en route when necessary), to start IVs at the scene when ground transport is available, or to await arrival of a paramedic.

INTERMEDIATES AND PARAMEDICS

- Establish multiple IV/IO access with isotonic solution and large-bore catheters. Titrate to improvement in mentation, skin color, HR, and BP.
- Infusion of large amounts of isotonic fluid to a penetrating trauma patient is not without potential risks. The penetrating trauma patient *may* have bled out a considerable amount prior to your arrival/intervention. The result *may* then be a lowered blood pressure, which *may* provide the opportunity for coagulation/tamponade of ruptured vessels or organs. Infusion of isotonic fluids *may* then rupture the site that has coagulated, thus encouraging an even greater amount of blood loss. However, fluid should not be withheld for critically unstable patients.
- For the critically unstable patient, administer fluid boluses titrated to SBP > 90, reassess, and consider additional boluses.
- See “TRAUMA STAT” protocol.
- When in doubt, contact medical control.

TRAUMA STAT

DESIGNATION OF CONDITION

If the patient meets any of the criteria listed below, the EMS provider should notify St. Vincent Hospital ER of a “TRAUMA STAT” candidate. This allows for the highest state of readiness upon the trauma patient’s arrival. If the patient meets the criteria, simply say "This is a trauma STAT" in your radio report, and state whether the patient is intubated. Do not use less direct language such as "This patient meets trauma STAT criteria."

- Confirmed SBP < 90 at any time (prehospital or ED) in adults. Age-specific hypotension in children (see below)
- Respiratory rate > 30, airway obstruction, or intubation
- Patient being transferred from another hospital receiving blood to maintain stable vital signs
- Gunshot wound to neck, torso (chest, abdomen), or groin
- GCS < 8 with mechanism attributed to trauma
- Penetrating injuries with major external arterial hemorrhage

Age-specific hypotension in children

Any age: loss of peripheral pulses
0-2 yrs: SPB < 65 mm Hg
2-5 yrs: SBP < 75 mm Hg
6-12 yrs: SBP < 80 mm Hg

9 APPENDIX A: SPECIAL SITUATIONS

CANCELLATION BY NON-MEDICAL PROVIDERS

Personnel responding should continue to respond to the scene, nonemergency traffic, if cancelled by a non-medical provider. Licensed EMTs may cancel additional medical assistance once patient contact and assessment have been accomplished.

Personnel should coordinate appropriate response to the scene to ensure no patient or patient care issues exist. It may be appropriate to have response cancelled by non-medical providers if no patient is physically present.

DEAD AT SCENE

Upon arrival at a scene in which the patient is obviously dead and resuscitation efforts would be unsuccessful, resuscitation efforts may be withheld. At least one of the following criteria should be present:

- Rigor mortis
- Livor mortis
- Obvious external exsanguination
- Truncal transection
- Decapitation
- Decomposition
- Extruded brain matter
- Blunt traumatic arrest (after consideration of potentially reversible causes)
- Penetrating trauma arrest with transport time of more than 10 minutes
- Sustained time down prior to arrival without CPR in progress with presenting rhythm of asystole in warm adults
- Appropriately completed EMS DNR orders or advance directive indicating no resuscitative efforts should be initiated

Note: Hypothermic arrests, near-drowning events, and medical pediatric arrests deserve full resuscitative attempts. Contact medical control for direction.

DO NOT RESUSCITATE (DNR) ORDERS

EMS providers may expect to encounter EMS-DNR orders (or other advance directives) in the field setting. An EMS-DNR order is a legally recognized advance directive applicable to pre-hospital care providers. Presence of an EMS-DNR order requires that EMS responders not perform certain resuscitation measures. Other advance directives such as hospital or nursing home DNR orders or personal living wills may be encountered in the pre-hospital setting, but should not be routinely followed without on-line Medical Control consultation.

The following guidelines will help when an EMS-DNR situation is encountered:

- If the care provider believes an EMS-DNR order may be present, attempt to locate the order while continuing with appropriate care.
- Identify the patient. This may be done with standard picture identification or accomplished by family members or others associated with the patient.

- If an EMS-DNR order is located, or the patient wears an EMS-DNR bracelet, and the identity has been verified, then the care provider must proceed as follows:
- If the patient is in respiratory and/or cardiac arrest, do not perform:
  - External chest compressions
  - Artificial ventilation
  - Intubation or other advanced airway adjuncts
  - Defibrillation or pacing
  - Cardiac medications
- If the patient is not in arrest, EMTs may administer the following, as long as the patient or authorized decision-maker does not refuse:
  - Oxygen
  - Suctioning
  - Basic airway management, excluding Combitube
  - Control of bleeding
  - Paramedics may administer analgesics, as appropriate
  - Other comfort care to assist the patient

The patient or legal guardian (when the legal guardian instituted the EMS-DNR order) may revoke the EMS-DNR at any time verbally or by defacing the written order or bracelet. Should this occur, then every action consistent with the standard of care should immediately be taken.

EMS-DNR orders should not be followed in cases of suspected homicide or attempted suicide.

HELICOPTER USE

Only approved EMS helicopter services may be used for patient transport.

Any EMS provider may request helicopter activation based on his training and direct knowledge of patient condition. The helicopter should be canceled only by the requesting provider or by a provider at a higher level of licensure who has made patient contact.

A helicopter should be activated as soon as deemed appropriate, even if ground transport has already been initiated. Use law enforcement or other appropriate resources to assist in establishing a safe and secure landing zone. Clear communication with the receiving facility as well as with the helicopter are essential.

INDICATIONS

- Critical trauma victims entrapped, with lengthy extrication times estimated so long as there is a transport time advantage
- Multiple victims which result in the inability of ground personnel to manage and transport adequately
- Critical trauma patients, when ground transport will take longer than 30 minutes
- Disaster situations
- Trauma patients in situations where ground transport is compromised (greater than 30 minutes) by either mechanical failure or remote location
- Critically burned patients
- When expeditious transport to University Hospital is appropriate

- Critical medical patients when air support can be achieved in less time than ground ALS support

RELATIVE CONTRAINDICATIONS

- Sustained cardiac arrest, medical or traumatic in origin

INTERVENING PHYSICIAN ON SCENE

A physician physically present at a scene who offers to assist in the care of a patient may be allowed to do so if the following conditions are met:

- The physician identifies himself to the EMT in charge of patient care as a physician currently licensed or otherwise authorized to practice in New Mexico.
- The physician agrees to accompany the patient to the hospital and to provide care until responsibility is appropriately transferred to the receiving hospital physician.
- If the on-scene physician's orders conflict with these protocols, the physician should be placed in direct voice contact with the receiving physician. If a conflict remains, EMS personnel will follow protocols.

Cards reading as follows are available to be presented to the intervening physician:
" An Emergency Medical Services system with comprehensive written protocols has been established and is monitored by the appropriate agencies. By showing proof that you are a licensed medical physician, you may take responsibility for the patient's care *if you accept full responsibility for patient management and the issuing of orders conforming to the established protocols, attending the patient in the ambulance enroute to the hospital and signing the EMS patient report form.* If the EMS provider on scene believes there is an issue with patient care, they are instructed to CONTACT MEDICAL CONTROL at the appropriate receiving facility via radio or cellular phone. You may be asked to also speak to the receiving physician. "
Use of this card is only for physicians who are intervening. Nothing in this protocol precludes appropriate assistance from recognized physicians in the community.

INTERVENING PHYSICIAN AT MEDICAL FACILITY

- While at the medical office/clinic/urgent care facility, the physician on scene is in charge of patient care, BUT cannot order EMS providers to perform procedures/medications outside of the accepted scopes of practice.

INVOLUNTARY RESTRAINT AND TRANSPORT

New Mexico Statutes Annotated Section 24-10B-9.1 Emergency Transportation, states: "Any person may be transported to an appropriate health care facility by an Emergency Medical Technician, under Medical Control, when the Emergency Medical Technician makes a good faith judgment that the person is incapable of making an informed decision about his own safety or need for medical attention and is reasonably likely to suffer disability or death without the medical intervention available at such a facility."
Summary of elements

- The health care facility must be capable of providing the appropriate level of care to meet the needs of the patient.
- The health care worker must be a licensed EMT. Certified EMS First Responders may not use this statute to involuntarily transport a patient.

- The EMT must be in voice contact with Medical Control in order to use this statute except when not feasible due to communications barriers.
- Death or disability as assessed by the EMT at the scene must be reasonably likely.
- The patient must be incapable of making an informed decision about his/her health care. This does not mean that the patient simply disagrees with the EMT.
- Document factors leading to the EMT's "good faith" decision regarding the patient's mental and physical condition, as well as the name and location of Medical Control involved in the situation.

Note: If it becomes necessary to restrain a patient for any reason, refer to "Patient Restraint" protocol.

MINORS

Patients under the age of 18 do not have the legal ability to refuse treatment and/or transportation to the appropriate facility. SFFD EMTs should contact medical control for situations involving nontransport of minors, in the absence of a legal guardian or authorized health care decision-maker.

NON-PATIENT

An individual must meet each of the following criteria to qualify as a non-patient:

- Refuses to be evaluated
- Did not call for EMS
- Is awake, alert and oriented to time, place, and person
- Has no current complaint
- Has no distracting injuries or illnesses
- Is not a danger to himself or others
- Is not mentally compromised by alcohol or drugs
- Is capable of making an informed decision

EMS personnel should complete the appropriate documentation when individuals refuse care. In light of any complaint, once evaluated by EMS personnel, an individual is considered a patient and thus an appropriate assessment and documentation is required.

All patients choosing not to be transported should be urged to call EMS for an assessment and transport at a later time if they should so desire or if their condition changes.

If personnel are concerned about the safety of the patient, contact medical control

OMI INVESTIGATIONS

THE UNATTENDED HOME DEATH

When a death occurs outside of a licensed nursing home or hospital facility and the private personal physician of the decedent does not attend the death, that death is considered an unattended death. By law, all unattended deaths fall under the jurisdiction of the OMI and it is necessary for OMI to conduct a full investigation.

In all cases of unattended death law enforcement must be contacted. Local law enforcement should be contacted first, the New Mexico State Police are to be utilized if

local law enforcement (city or county) is unavailable or has an extended response time. EMS personnel should simultaneously dispatch law enforcement and OMI to all deaths.

All unattended deaths are to be considered a crime scene by EMS until told otherwise by law enforcement on scene. For this reason, extreme care must be exercised for preservation of the crime scene. Any medical equipment that is used on the patient should be left with the patient (example: IV lines, airway devices, etc.). If external blood loss is caused by EMS (example IV attempts) it should be noted in the EMS run report as well as verbalized to the first arriving law enforcement officer.

The body of the deceased should not be moved until law enforcement is notified. Within reason, no one should be allowed to remain in the room of the deceased alone until law enforcement is on scene.

OMI can obtain the EMS report from headquarters within 24 hours.

If resuscitation efforts are initiated by EMS and then terminated by EMS, the above protocol shall still apply.

DEATH OF VIOLENT ORIGIN

In addition to all of the elements outlined in the Unattended Home Death protocol, extra awareness of crime scene preservation must be exercised.

For motor vehicle accidents, this includes: skid marks, debris scattering patterns, clothing location, etc. EMS personnel should realize that on occasion simple placement of units (marked vehicles or private owned vehicles) might place them into the crime scene and subject to the control and authority of law enforcement on scene.

Weapons or sources of injury should not be touched, moved or altered in any way. The only exception to this are when EMS personnel on scene feel that there is a legitimate threat of harm for themselves or additional personnel on scene. In most cases, this means that the scene was not secure and probably should not have ever been entered. If the scene is not safe and you do not have the resources to make it safe, leave the scene. EMS safety always takes precedence over patient safety.

REFUSAL OF TREATMENT/TRANSPORT

Patient refusal of treatment and/or transport represents clinical risks. These situations emphasize the need for complete extensive assessments and documentation, including potential risks and recommendations to contact 911 for any changes in patient condition. Personnel should utilize the departmental EMS Liability Release Form.
Determining patient decision-making capacity:

- Patient must be oriented to person, place, time and event
- Patient must not appear to have a mental compromise
- Patient judgment must not be influenced by hypoxia or head injury
- Patient must not have obvious visible impairment from drugs or alcohol
- Patient must not have evidence of suicidal tendencies or obvious psychiatric disorders
- Patient must appear to understand the consequences of his/her decision

Accepting refusal from an adult under the influence of alcohol or drugs:

- If, based upon the determination of the paramedic, a patient has decision-making capacity, understands the repercussions of his or her decisions and wishes to sign

out against medical advice (AMA); the paramedic may accept the refusal so long as the assessment and circumstances are well documented.

If patient is deemed to have the capacity to refuse:

- Potential risks, if any, of refusing treatment/transport must be clearly explained to the patient including any possible implications of the injury or illness, and possibilities of death or disability, if applicable.
- Consider soliciting the help of friends or family to convince the patient to accept your advice. Consider contacting medical control to speak with the patient.
- If patient does not wish to be treated or transported and you do not feel they have a life- or limb-threatening injury, advise them to call 911 for any changes, symptoms, etc. Document accordingly.
- Ask the patient or legal guardian to sign the EMS Liability Release Form. (This request may be refused.)
- Obtain witness signatures for on the refusal form, particularly if the patient refuses to sign.

If patient is not deemed to have the capacity to refuse, law enforcement should be summoned to assist with Involuntary Restraint and Transportation, if applicable.

TERMINATION OF RESUSCITATION

The following guidelines provide paramedics the flexibility to take into account all of the current factors influences a resuscitation attempt.

Further, these guidelines encompass only those individuals who have life-limiting illnesses and fail full ALS intervention, i.e., intubation, medications, defibrillation, etc. This protocol will allow cessation of the resuscitation on a selected subset of patients, include both at home and in nursing facilities, for whom death is not expected.

Excluded in this protocol are those who's death is unexpected and without prior illness (e.g., young sudden cardiac death).

In patients who meet the criteria for the State of New Mexico EMS DNR Order and for whom this Agreement has been completed, CPR and advanced life support will not be done; and only symptomatic care and transport will be provided, as required.

Discontinuation of CPR and other advanced life-saving interventions may be considered when all of the following criteria have been met.

- Advanced airway management successfully accomplished
- Adequate CPR and ACLS administered
- Rhythm appropriate medications and defibrillation for ventricular dysrhythmias administered
- Persistent asystole or agonal rhythm present with no reversible causes identified
- No evidence of ingestion (overdose/poisoning), internal bleeding, or hypothermia
- Failure to establish spontaneous circulation (palpable pulse), persistently recurrent or refractory ventricular fibrillation/tachycardia, or no continued neurological activity, (spontaneous respirations, eye opening, or motor response) after appropriate BLS and ALS resuscitation efforts over 20 minutes
- Patient is at least 18 years of age unless death is expected by the presence of an existing illness

Family members and others present must be acknowledged and assisted. Additionally, an explanation of the duties of the Office of the Medical Investigator and disposition of the body should be discussed.

If requested by the family and in spite of the patient's failure to respond, the patient should be transported to the emergency room.

10 APPENDIX B: DRUG INFORMATION

Note: In general, drugs that may be given by the IV route may also be given by the IO route. The ETT route should be avoided.

ACETYLSALICYLIC ACID

ASA, ASPIRIN

CLASS OF DRUG

Anti-inflammatory, analgesic, antipyretic, anticoagulant

INDICATIONS

1. Myocardial infarction patients, including suspected AMI patients.

CONTRAINDICATIONS

1. Hypersensitivity
2. Bleeding disorders
3. Stroke
4. Aortic dissection
5. Asthma (relative)

ADMINISTRATION

Adult: [160-325 mg] orally for AMI (prefer chewable)
Pediatric: Should not to be given to pediatric patients.

SPECIAL NOTES

All patients with suspected AMI and without contraindications receive aspirin.

ADENOSINE

ADENOCARD®

CLASS OF DRUG

Antidysrhythmic

INDICATIONS

1. Narrow-complex paroxysmal supraventricular tachycardia (PSVT), including PSVT associated with Wolff-Parkinson-White syndrome.

CONTRAINDICATIONS

1. Hypersensitivity
2. High degree A-V block and sick sinus syndrome, unless a pacemaker is in place

DRUG INTERACTION

1. Carbamazepine (Tegretol, Tegretrol-XR, Carbatrol, Epitol, Equetro) - increased likelihood of progressive heart blocks.

2. Dipyridamole (Persantine) - potentiates the effect of adenosine (reduce the dosage).
3. Methylxanthines (caffeine, theophylline) - reduce effectiveness (a larger dosage may be required).
4. Nicotine - may increase risk of tachycardia.

ADMINISTRATION

Adult: [6 mg] rapid IVP (1-2 seconds) followed with a 30 cc flush. A second dose of [12 mg] rapid IVP followed by a 30 cc flush may be given in 1-2 minutes. Single doses of greater than 12 mg should not be given without approval of medical control. May be given up to three times and always follow each bolus with a 30 cc flush.

Pediatric: Initial: [0.1 mg/kg] rapid IVP. Repeat in 2-3 minutes if no change. Second and third dose at [0.2 mg/kg] rapid IVP.

SPECIAL NOTES

1. Use on patients with asthma may induce broncospasm.
2. Safety in pregnancy is unknown.
3. Transient dysrhythmias, such as periods of asystole, are common and self-limiting, requiring no treatment unless they persist.
4. Side effects may include: facial flushing, headache, chest pain, dyspnea, lightheadedness, and nausea.
5. Must be given in the IV port most proximal to the patient.

ALBUTEROL

PROVENTIL®, VENTOLIN®

CLASS OF DRUG

Sympathomimetic, Beta 2 selective adrenergic bronchodilator

INDICATIONS

1. Albuterol is used to treat reversible airway obstruction caused by:
a. Wheezing associated with asthma
b. COPD (emphysema)
c. Chronic bronchitis

CONTRAINDICATIONS

1. Hypersensitivity

DRUG INTERACTION

1. Beta adrenergic agents - potentiates the effects
2. MAO inhibitors - may lead to hypertensive crisis
3. Beta adrenergic blockers - decreases the effectiveness

ADMINISTRATION

Nebulizer
Adult: [2.5-5.0 mg] (up to 10 mg) in 3 ml of sterile NS given as inhalation therapy over 5-15 minutes, may be repeated as necessary.

Pediatric: [1.25-2.5 mg] (up to 5 mg) in 3 ml of sterile NS given as inhalation therapy over 5-15 minutes, may be repeated as necessary.

SPECIAL NOTES

1. Most side effects are dosage related.
2. May decrease arterial oxygen tension acutely by causing bronchodilation in areas of lung with poor blood perfusion
3. Care should be taken if patient is already using an inhalant due to possible development of severe paradoxical airway resistance with repeated excessive use.

AMIODARONE

CORDARONE®

CLASS OF DRUG

Antiarrhythmic (Class III)

INDICATIONS

1. Pulseless VF/VT refractory to initial electrical therapy
2. Unstable VT refractory to lidocaine and/or electrical therapy

CONTRAINDICATIONS

1. High degree AV blocks or sinus node dysfunction with marked bradycardia unless a functional pacemaker is in place.
2. Congestive heart failure

DRUG INTERACTION

1. Enhanced bradycardia and hypotension when given with other beta-blockers or calcium channel blockers.

ADMINISTRATION

Adult:
Pulseless VT/VF: 300 mg initial bolus IVP after epinephrine. May re-bolus with 150 mg over 10 minutes for breakthrough dysrhythmias.
Sustained VT: 150 mg over 10 minutes. May re-bolus with 150 mg
Maintenance infusion: 1 gm in 250 cc IV fluid. For the first 6 hours 1.0 mg/min, then 0.5 mg/min
Pediatric: Not recommended

SPECIAL NOTES

1. IV use of amiodarone is a new intervention based on its successful use in several clinical trials.
2. Must be drawn up slowly to avoid 'bubbles" do not shake the ampule for the same reason.
3. Must be given concurrently with epinephrine in the pulseless patient.
4. Hypotension and bradycardia can occur in patients with a pulse.

ATROPINE SULFATE

CLASS OF DRUG

Anticholinergic (parasympatholytic)

INDICATIONS

1. Symptomatic sinus bradycardia or A-V Blocks
2. Bradycardia associated with PEA
3. Asystole
4. Anticholinesterase poisonings - organophosphate, mushrooms (certain types), and nerve gases

CONTRAINDICATIONS

1. None, when indicated.

DRUG INTERACTION

1. Antihistamines, tricyclic antidepressants - additive affect

ADMINISTRATION

1. Cardiac indications
   Adult: [0.5 - 1.0 mg] IV every 3-5 minutes; max 3.0 mg (0.04 mg/kg) [1.0 mg] rapid IVP or ET every 3-5 minutes (asystole, PEA)
   Pediatric: [0.02 mg/kg] IV or IO for 2 dosages. Minimum of 0.1 mg and maximum of 0.5 mg
2. Anticholinesterase poisoning
   Adult: [2.0 mg] IVP repeated until symptoms abate
   Pediatric: [0.05 mg/kg] IV or IO, repeated until symptoms abate
3. Mushroom poisoning:
   Adult: [2 mg] IVP, repeated to doses sufficient enough to control parasympathomimetic signs

SPECIAL NOTES

1. May be not be effective with high degree A-V block (2nd degree type II, 3rd degree) - do not delay pacing.
2. Bradycardia in the setting of an acute MI is common and probably beneficial. Don't treat the rate unless there are signs of poor perfusion (i.e. low blood pressure, mental confusion). Chest pain could be due to an AMI or to poor perfusion caused by the bradycardia itself.
3. Atropine increases the workload and myocardial 02 consumption of heart. Beware of patients who have an ischemic myocardium. Administer supplemental oxygen.

BENZODIAZEPINES

DIAZEPAM (VALIUM®), MIDAZOLAM (VERSED®), LORAZEPAM (ATIVAN®)

CLASS OF DRUG

Anticonvulsant, anti-anxiety, sedative, muscle relaxant

INDICATIONS

1. Control of seizures
2. Sedation for cardioversion
3. To facilitate sedation in conjunction with paralytics for rapid sequence intubation.
4. Reduction of anxiety
5. Skeletal muscle relaxant

CONTRAINDICATIONS

1. Hypersensitivity
2. CNS depression

DRUG INTERACTION

1. Additive effect to other CNS depressants such as alcohol, narcotics, etc.

ADMINISTRATION

Adult:
Diazepam (Valium®): [2-10 mg] IVP, slow with IV running open
Lorazepam (Ativan®): [2 - 4 mg] (0.05 mg/kg) IVP, slow with IV running open
Midazolam (Versed®): [1-5 mg] IVP, slow (over 2 minutes) with IV running open
Note: HIGHER DOSES MAY BE REQUIRED
Pediatric:
Diazepam: > 5 yrs. of age, [1 mg]every 2-5 minutes to a max. of 10 mg. Repeat every 2-4 hrs. < 5 yrs. of age, [0.2 - 0.5 mg] every 2-5 minutes to a maximum of 5 mg.
Rectal dosage may be warranted in seizure patients if no venous access is available.

SPECIAL NOTES

1. Should not be mixed with other agents, or diluted with intravenous solutions. Give through the proximal end of IV tubing, then flush well.
2. Most likely to produce respiratory depression on patients who have taken other depressant drugs, especially alcohol and barbiturates.
3. It can cause local venous irritation. Use relatively large veins.

CALCIUM PREPARATIONS

CALCIUM GLUCONATE, CALCIUM CHLORIDE,

CLASS OF DRUG

Electrolyte

INDICATIONS

1. Used as antidote for calcium channel blocker overdoses

2. Magnesium sulfate overdoses
3. Black Widow spider bite

CONTRAINDICATIONS

1. Hypercalcemia

DRUG INTERACTION

1. Increase toxicity of cardiac glycosides (Digoxin)

ADMINISTRATION

Calcium Gluconate

Adult: [5 - 10 ml] SLOW IVP (Do Not Exceed 2 ml/minute) repeat if necessary after 5 - 10 min.

Pediatric: [0.2 - 0.3 ml/kg] SLOW IVP of 10% solution

Calcium Chloride

Adult: [5-10ml] by SLOW IVP. Repeat every 10 minutes as needed (1 ml of 10% = 100 mg of calcium chloride).

Pediatric: [0.1 - 0.2 ml/kg] by SLOW IVP. Repeat once in 10 minutes if needed.

NOTE: RAPID INJECTION CAN CAUSE HYPOTENSION, BRADYCARDIA AND DEATH.

SPECIAL NOTES

1. It is best to warm the drug to body temperature prior to administration.
2. If heart is beating, rapid administration of calcium salts can produce bradycardia and/or arrest.
3. May increase cardiac irritability, i.e., PVCs, particularly in the presence of digitalis.
4. Irritating to small veins. Local infiltration will cause tissue necrosis.

DEXTROSE

Oral and IV - 25% and 50%

CLASS OF DRUG

Carbohydrate, nutrient, short-acting osmotic diuretic

INDICATIONS

1. Symptomatic hypoglycemia
2. Unconsciousness of unknown origin
3. Seizures
a. Unknown etiology
b. New onset
c. Known diabetic actively seizing
4. Refractory medical cardiac arrest (especially in neonates)

CONTRAINDICATIONS

1. Intra-cranial bleeds
2. Delirium tremens with dehydration

3. Administration through the same infusion set as blood
4. Unconscious (for oral dextrose)
5. Suspected CVA

DRUG INTERACTION

1. None

ADMINISTRATION

1. Oral: [12-25 gm] of paste, may be spread with a tongue depressor.
2. IV:

Adult: [25 to 50 gm] slow IV push into patent vein, if patient is unable to protect airway or tolerate oral fluids. May be repeated as needed. Be prepared to restrain. May be given rectally (paramedic only).

Pediatric: Dilute 1:1 with sterile saline to make 25% solution (0.25 mg/ml) Give [0.5 - 1.0 g/kg] slow IV push. May be given rectally (paramedic only).

SPECIAL NOTES

1. Attempts at documenting hypoglycemia via automatic glucometry should be made before administration.
2. Must ensure patent IV line, and recheck patency during administration

DIPHENHYDRAMINE

BENADRYL®

CLASS OF DRUG

Antihistamine, H1 blocker

INDICATIONS

1. Allergic reactions
2. Anaphylaxis
3. Dystonic reaction to phenothiazines
4. Motion sickness

CONTRAINDICATIONS

1. Acute asthma

DRUG INTERACTION

1. Additive CNS depression with alcohol, sedatives, narcotics

ADMINISTRATION

Adults: [20-50 mg], slow IVP at a rate of 1ml/min or deep IM injection
Pediatric: [1 - 2 mg/kg], slow IVP; deep IM injection with a maximum dose of 50 mg

SPECIAL NOTES

1. May have an immediate effect in dystonic reactions.
2. No early benefit in allergic reactions

DOPAMINE

DOPASTAT®, INTROPIN®

CLASS OF DRUG

Potent sympathomimetic, dopaminergic

INDICATIONS

1. Primary indication is cardiogenic shock.
2. May be useful for other forms of shock
3. May be useful, at low doses, in renal failure
4. Used for refractory bradycardia unresponsive to atropine, and when pacing is unavailable.

CONTRAINDICATIONS

1. Tachydysrhythmias
2. Pheochromocytoma

DRUG INTERACTION

1. Hypotension and/or bradycardia with phenytoin
2. Reduced effects with Beta-adrenergic blocker

ADMINISTRATION

Adult: IV infusion ONLY - Mix 400 mg in 250 ml D5W or NS to produce a concentration of 1600 mcg/ml. Infusion rates should start at [5 mcg/kg/min]. Gradual increase to 20 mcg/kg/min. usually achieves desired effect. (Other concentrations are used, so know what you are using). Use microdrip chamber or an infusion pump.

Pediatric: Mix 200 mg in 250 ml D5W or NS to produce concentration of 800 mcg/ml. Rate starts [5 mcg/kg/min]. Titrate to effect. Do not exceed 20 mcg/kg/Min.

SPECIAL NOTES

1. Higher doses can cause central vasoconstriction limiting renal blood flow.

EPINEPHRINE

ADRENALINE® (1:1,000 and 1:10,000 solutions)

CLASS OF DRUG

Sympathomimetic

INDICATIONS

1. Severe bronchospasm
2. Bronchospasms unresponsive to albuterol
3. Anaphylaxis
4. Cardiac Arrest
5. Symptomatic bradycardia

CONTRAINDICATIONS

1. Relative: CAD, angina, tachycardia

DRUG INTERACTION

1. Reduced effects with Beta-adrenergic blocker

ADMINISTRATION

1. Cardiac Arrest
   Adult: [1 mg](1:10,000) IV/IO every 3 - 5 minutes.
   Pediatric: IV/IO [0.01 mg/kg] (1:10,000) IV/IO.
2. Bradycardia
   Adult and Pediatric: [1 mg/ 1:1,000] in 250 cc NS or D5W administered at 2 - 10 mcg/min
3. Bronchospasm/Anaphylaxis
   Adult: [0.3 mg] (1:1,000) SQ. [0.3 mg] (1:10,000) IV. Repeat PRN (Paramedic Only)
   Pediatric: [0.01 mg/kg (1:1000)] SQ o a maximum dose of 0.3 mg/dose

SPECIAL NOTES

1. When used for allergic reactions, increased cardiac workload can precipitate angina and/or AMI in susceptible individuals.
2. Due to peripheral vasoconstriction, it should be used with caution on patients with peripheral vascular insufficiency.
3. Wheezing in an elderly person is pulmonary edema or pulmonary embolus until proven otherwise.

FUROSEMIDE

LASIX®

CLASS OF DRUG

Potent loop diuretic

INDICATIONS

1. Pulmonary edema
2. Hypertensive emergencies (AMI, APE, or encephalopathy)

CONTRAINDICATIONS

1. Hypovolemia
2. Severe electolyte depletion (hypokalemia)
3. Hypotension

DRUG INTERACTION

1. Severe hypotension with antihypertensives and nitrates

ADMINISTRATION

Adult: For patients not currently taking furosemide, [20 - 40 mg] slow IVP or [0.5 - 1.0 mg/kg] slow IVP (40 - 80 mg). Use lower dose if no previous exposure to the drug. If the patient is currently taking furosemide, give the PO dose IV. Patients already on oral diuretics may require higher doses. You may repeat one dose PRN.

Pediatric: [1.0 mg/kg] slow IVP. May be repeated in 6 - 8 hours.

SPECIAL NOTES

1. It can lead to profound diuresis with resultant shock and electrolyte depletion (particularly K+). Therefore, do not use in hypovolemic states and monitor closely, particularly after IV administration.
2. It should be used in children or pregnant women cautiously.
3. If patient unconscious, must have Foley catheter in place and unobstructed urine outflow. Advise the physician if urine is bloody. Trauma to kidneys and urinary system makes the use of furosemide more hazardous.

GLUCAGON

CLASS OF DRUG

Hormone - hyperglycemic agent

INDICATIONS

1. Documented symptomatic hypoglycemia (BGL less than 60 mg/dl) when an IV cannot be started.
2. Beta blocker and/or calcium channel blocker overdose with serious signs and symptoms
3. Anaphylaxis refractory to epinephrine, or on patients who have history of serious coronary arterial disease

CONTRAINDICATIONS

1. Patients who will be unable to receive supplemental glucose, orally, IV or rectally after administration of glucagon.
2. Hypersensitivity to pork and/or beef
3. Use with caution on patients with pheochromocytoma.

DRUG INTERACTION

1. Hyperglycemic effects intensified and prolong by epinephrine.
2. Will precipitate when mix with calcium preparation.

ADMINISTRATION

Note: 1 mg = 1 unit

1. Hypoglycemia

Adult: [0.5 - 1 mg] IM, SQ, IVP, may repeat in 10 - 20 minutes if no response.
Pediatric: [25 mcg/kg] IM, SQ, IVP, may repeat in 10 - 20 minutes if no response.
THE PATIENT MUST BE GIVEN SUPPLEMENTAL GLUCOSE ASAP; PO, IV, OR RECTAL.

2. Beta Blocker Overdose

Adult: [3 to 10 mg] IVP over 1 minute. It may be followed by an infusion of 2 - 5 mg/hr.
Pediatric: [0.1 mg/kg] IVP over 1 minute, repeat in 5 minutes, if needed.

3. Anaphylaxis

Adult: [1 to 2 mg] slow IVP, may be repeated every 5 to 10 minutes.
Pediatric: Rarely indicated

SPECIAL NOTES

1. The patient must be given supplemental glucose ASAP; PO, IV, or Rectal. If this is not possible, the patient may be better off without glucagon. Glucagon will release all of the patient's available glycogen. If the patient is not provided with glucose, the subsequent hypoglycemia will be greater than before glucagon.
2. Glucagon is supplied in a powder and must be reconstituted by sterile water or saline, 1 ml of normal saline for each 1 mg of powder and shaken well.

LIDOCAINE

XYLOCAINE®

CLASS OF DRUG

Antidysrhythmic, local anesthetic

INDICATIONS

1. Symptomatic ventricular dysrhythmias
2. Sustained ventricular tachycardia
3. Ventricular fibrillation/pulseless ventricular tachycardia
4. Local anesthetic for nasal intubation

CONTRAINDICATIONS

1. Hypersensitivity
2. High AV Blocks

DRUG INTERACTION

1. Additive cardiac depression with phenytoin, quinidine, procainamide, and propranolol

ADMINISTRATION

1. IV bolus technique
   Adult:
   a. Ventricular tachycardia: [1 -1.5 mg/kg]. If VT persists, [0.5-0.75 mg/kg] every 3 to 5 minutes, up to 3.0 mg/kg total. Start lidocaine infusion if VT converts (see below).
   b. Ventricular fibrillation and pulseless VT: [1-1.5 mg/kg] followed by defibrillation. If VF or VT persists - repeat [0.5-0.75mg/kg] (up to 3.0 mg/kg total) followed by defibrillation. Start lidocaine infusion if VF converts (see below).
   Pediatric: [1 mg/kg]
2. IV drip technique
   Adult:
   a. Mix 1000 mg of lidocaine in 250 ml D5W or NS for a concentration of 4 mg/ml.
      1. If up to 2 mg/kg has been administered, set drip at 2 mg/min
      2. If 2 mg/kg has been administered, set drip at 3 mg/min
      3. If 3 mg/kg has been administered, set drip at 4 mg/min
   b. A second bolus after 10 minutes may be given per physician order.

Pediatric
a. Mix 120 mg of lidocaine in 100 ml D5W
b. Set drip at 20-50 µg/kg per min.
3. IM: [200mg], if unable to start IV
4. ET: 2–2.5 times the IV bolus dose

SPECIAL NOTES

1. For patients over 70 years of age, or with hepatic or renal failure, the loading dose remains the same, but maintenance infusion is run at half the normal rate.

MAGNESIUM SULFATE

CLASS OF DRUG

CNS depressant; antidysrhythmic; electrolyte

INDICATIONS

1. Initial treatment of seizures associated with eclampsia, and seizures, refractory to benzodiazepines.
2. Second-line antidysrhythmic in the treatment of ventricular fibrillation/pulseless ventricular tachycardia, refractory to lidocaine.
3. First-line antidysrhythmic in the treatment of Torsades de Pointes.
4. To control contractions in pre-term labor
5. Acute asthma refractory to other more conventional treatment, or when the effects of beta-adrenergic medications contraindicate their use.

CONTRAINDICATIONS

1. Hypermagnesemia
2. Hypocalcemia
3. Anuria
4. Heart blocks

DRUG INTERACTION

1. Potentiates neuromuscular blocking agents

ADMINISTRATION

1. Ventricular ectopy refractory to lidocaine: [2 gm] slow IVP
2. Pulseless ventricular fibrillation and ventricular tachycardia refractory to lidocaine and bretylium: [2 gm] IVP followed by defibrillation at 360 to 400 joules
3. Ventricular tachycardia, or wide complex tachycardia, unresponsive to lidocaine: [2 gm] slow IVP
4. To control contractions in pre-term labor: [2 gm] slow IVP, followed by maintenance infusion of 1 gm per hour
5. Treatment of seizures associated with eclampsia: [2-4 gm] slow IVP
6. Acute asthma: [1 to 2 gm] slow IVP

7. Acute MI Patient: [1 - 2 gm] (8 - 16 mEq) diluted in 50 or 100 ml D5W administered over 5 - 60 minutes. An infusion of [0.5 to 1.0 gm (8 - 16 mEq) should follow for 24 hours.
8. Torsades de Pointes: [2 gm] IV push

SPECIAL NOTES

1. Monitor deep tendon reflexes often, especially those patients receiving a maintenance infusion.
2. Calcium gluconate will reverse the toxic effects of magnesium sulfate.

NARCOTIC ANALGESICS

FENTANYL (SUBLIMAZE®)

CLASS OF DRUG

Synthethic narcotic analgesic

INDICATIONS

1. Analgesia for patients with moderate to severe pain. Analgesia of choice for multitrauma patients.
2. Short term sedation.
3. Anesthesia

CONTRAINDICATIONS

1. Hypersensitivity/known intolerance
2. Patients particularly sensitive to respiratory depression
3. Myasthenia gravis
4. Pregnancy

DRUG INTERACTION

1. Benzodiazepines Diazepam - increased risk of CV depression
2. Sedatives/Hypnotics, other opioids, CNS depressants and alcohol - increased risk of hypotension.
3. Avoid use in patients who have received MAO inhibitors within the previous 14 days - may produce unpredictable, potentially fatal reactions.

ADMINISTRATION

Adult: [25-100 mcg] IVP
Pediatric: Under <15 kg (transmucosal only). 2-12 yrs of age, 2-3 mcg/kg

SPECIAL NOTES

1. Use cautiously in geriatric or debilitated patient (use lower doses), diabetics, patients with pulmonary or hepatic disease, head trauma, increased ICP, undiagnosed abdominal pain and cardiac disease.
2. Abdominal distension, muscle rigidity, and/or urinary retention may be seen at high doses.
3. Approximately same half-life as naloxone.

MORPHINE SULFATE

CLASS OF DRUG

Narcotic analgesic

INDICATIONS

1. Analgesia for patients with major pain such as burns, and isolated fractures
2. Treatment of acute pulmonary edema
3. Acute myocardial infarction
4. Sedation for procedures

CONTRAINDICATIONS

1. Hypersensitivity
2. Hypotension is a relative contraindication to use. Remember that some people will be hypotensive in response to pain itself. Be cautious.
3. Head or abdominal injuries also contraindicated, since the analgesic effect removes the clinical signs that need to be watched.
4. Do not use in persons with respiratory difficulties because their respiratory drive might be depressed, except in pulmonary edema.
5. In the presence of major blood loss, the body's compensatory mechanisms may be suppressed by the use of morphine, and the hypotensive effect will become very prominent. Do not use it in these circumstances.

DRUG INTERACTION

1. Additive effects with other CNS depressants
2. MAO inhibitors can cause unpredictable and severe reactions, reduce dose to 25% of a usual dose.

ADMINISTRATION

Adult: [2 - 20 mg] slow IV push until desired effect achieved (use lowest effective dose to avoid complications)
Pediatric: [0.05 - 0.2 mg/kg] slow IVP titrated to effect with a maximum dose of 15 mg

SPECIAL NOTES

1. Take vital signs before and 2 minutes after administration.
2. IVP only (unless you cannot start an IV and/or are directly ordered to administer IM)
3. Often causes vomiting; administer slowly.
4. On-line medical control should be contact before administering to the non-cardiac patient.

NALOXONE

NARCAN®

CLASS OF DRUG

Narcotic antagonist

INDICATIONS

1. Reversal of narcotic effects, particularly respiratory depression, due to narcotic drugs, whether ingested, injected, or administered in the course of treatment. Narcotic drugs include agents such as morphine, Demerol®, heroin, Dilaudid®, Percodan®, codeine, Lomotil®, propoxyphene (Darvon®), pentazocine (Talwin®).
2. For unconsciousness of unknown etiology to rule out (or reverse) narcotic depression

CONTRAINDICATIONS

1. Hypersensitivity
2. Absences of indication

DRUG INTERACTION

1. May induce narcotic withdrawal

ADMINISTRATION

Adult: [0.4 mg] IVP (2.0 mg total dose). [0.4 - 0.8 mg] IM or SQ. [2mg (1mg per nare)] IN. Titrate to respiratory effort/rate. May be repeated at 2 - 3 minutes if needed.

Pediatric: [0.01 mg/kg] to 5 yrs or 20 kg, IV/IO, IM, SQ. May be repeated at 0.1 mg/kg if no response.

Neonate: [0.01 mg/kg] slow IV/IO, IM, SQ; repeat in 2-3 minutes if needed. (Mix 1 ml of naloxone 0.4 mg/ml in 9 ml of D5W, which gives 0.04 mg/ml).

Note: Much higher doses should be given to patients with suspected propoxyphene (Darvon®), pentazocine (Talwin®), and fentanyl overdoses.

SPECIAL NOTES

The patient may quickly become conscious and combative.

NITROGLYCERIN

CLASS OF DRUG

Anti-anginal agent/vascular dilating agent

INDICATIONS

1. Chest pain, anginal pain
2. Congestive heart failure with severe pulmonary edema
3. Hypertensive emergencies (APE, AMI, or encephalopathy)

CONTRAINDICATIONS

1. Hypersensitivity
2. Severe hypotension
3. Pericardial tamponade
4. Increased intra-cranial pressure
5. Hypovolemia/severe anemia

DRUG INTERACTION

1. Additive hypotension with beta-adrenergic blockers, antihypertensives, calcium channel blockers, and phenothiazines.
2. Tricyclic antidepressants and antihistamines may interfere with buccal absorption.

ADMINISTRATION

Adult

1. Sublingual tablet [0.3 - 0.4 mg]. Repeat at 3 - 5 minutes as needed to a total of three tabs (or more by MCEP order).
2. Sublingual spray [0.4 mg] metered dose, sprayed directly under the tongue; additional one or two sprays every 3 - 5 minutes for a total of three sprays.
3. Infusion: [5 - 20 mcg/min] the infusion may be increased by 5 mcg/min every 3 - 5 minutes to 50 - 200 mcg/min. The infusion dose is leveled off when desired effect is reached or a decrease in blood pressure of more than 10 mm Hg over baseline or less than 90 mm Hg systolic is observed. (Inter-facility drug and by infusion pump only for IV infusion.)

Note: The most common method for mixing nitroglycerin is 50 mg nitroglycerin in 250 ml of normal saline. This yields a concentration of 200 mcg/ml (0.2 mg/ml) in glass or non-absorbable container and non-PVC tubing.

Pediatric: Not recommended for pre-hospital use.

SPECIAL NOTES

1. Common side effects may include: throbbing headache, flushing, dizziness, and burning under the tongue (if these side effects are noted, the pills may be assumed potent, not outdated).
2. Less common effect: marked hypotension, particularly orthostatic.
3. Paramedics should use their supply of nitroglycerin, not the patient's.
4. Use with caution with patient not previously receiving nitroglycerin.
5. Generalized vasodilation may cause profound hypotension and reflex tachycardia.
6. NTG tablets loose potency easily, should be stored in a dark glass container with a tight lid, and not exposed to heat. NTG spray does not have this problem.
7. Use only with Medical Control on patients with systolic BP below 100 mm Hg.

OXYGEN

CLASS OF DRUG

Gas

INDICATIONS

1. Suspected hypoxia or respiratory distress from any cause
2. Acute chest pain in which myocardial infarction is suspected
3. Shock (decreased oxygenation of tissue) from any cause
4. Trauma
5. Carbon monoxide poisoning

CONTRAINDICATIONS

1. None

DRUG INTERACTION

1. None

ADMINISTRATION

Adult and pediatric:

1. Low flow (NC 1 - 2 L/Min). Patients with chronic lung disease with unusual dyspnea or other problems (see below).
2. Moderate flow (NC 4 - 6 L/Min). Precautionary use for trauma, chest pain, etc.
3. High flow (NRB 10 - 15 L/Min). Severe respiratory distress, either medical or traumatic, shock, or at providers discretion

SPECIAL NOTES

1. If the patient is not breathing adequately on his own, the treatment of choice is assisted ventilation, not just supplemental 02.
2. A very small percentage of patients with chronic lung disease lack sensitivity to carbon dioxide levels and breathe only because of their hypoxic drive. Administration of 02 MAY depress their respiratory drive. DO NOT WITHHOLD OXYGEN IN CRITICALLY ILL PATIENTS BECAUSE OF THIS POSSIBILITY. BE PREPARED TO ASSIST VENTILATION, IF NEEDED.
3. Oxygen toxicity (overdose) is not a hazard from acute administration.
4. Nasal prongs work equally well on nose and mouth breathers.
5. Giving 100 % oxygen to all patients is unnecessary. If the patient has 96% O2 saturation and is in no acute distress, a NRB is not necessary.

PHENYLEPHERINE

NEO-SYNEPHRINE®

CLASS OF DRUG

Alpha-adrenergic agent, vasoconstrictor (nasal)

INDICATIONS

Used as an agent to reduce bleeding during nasal intubation.

CONTRAINDICATIONS

1. Known hypersensitivity
2. Severe hypertension
3. Ventricular tachycardia

DRUG INTERACTION

1. May decrease effectiveness of insulin, and oral hypoglycemic agents.
2. Use with beta blockers may result in initial hypertension followed by bradycardia.
3. MAO inhibitors - hypertension

ADMINISTRATION

Adults: [2 "squirts"] intranasal, in the selected nostril, prior to insertion of nasal tube.

SPECIAL NOTES

1. Use with extreme caution in geriatric patients, severe arteriosclerosis, bradycardia, partial heart block, pregnancy and lactation.

SODIUM BICARBONATE

CLASS OF DRUG

Alkalinizing agent

INDICATIONS

1. To correct metabolic acidosis found during prolonged cardiac arrest, after initial interventions.
2. May be used as an adjunct in other causes of metabolic acidosis such as near-drowning or diabetic ketoacidosis
3. Overdoses of tricyclic antidepressants

CONTRAINDICATIONS

1. Suspected metabolic or respiratory alkalosis

DRUG INTERACTION

1. Inactivates most drugs, and must not given in the same IV at same time.
2. Causes calcium preparations to precipitate

ADMINISTRATION

1. Cardiac Arrest: Adult and pediatric: [1 mEq/kg] IVP initially, then [0.5 mEq/kg] no more than one amp. every 10 minutes until a pulse restored or as indicated by ABGs.
2. Other special circumstances, such as tricyclic antidepressant overdose: Adult and pediatric: [1 mEq/kg] IVP single dose per physician order.

SPECIAL NOTES

1. This agent is no longer a first-line drug for cardiac arrest as per ACLS algorithms.
2. Each amp of bicarbonate contains 44 or 50 mEq of Na++. In persons with cardiac disease this will increase intra-vascular volume and further stress the heart.
3. Hyperosmolarity of the blood can occur because the NaHCO3 is concentrated. This results in cerebral impairment.
4. These dosages are a very rough guide. Blood gasses should be obtained as soon as possible to direct further therapy.
5. Correct CPR, hyperventilation, defibrillation and drug therapy is more important than bicarbonate.

VASOPRESSIN

PITRESSIN®

CLASS OF DRUG

Hormone (antidiuretic)

INDICATIONS

1. May be used as an alternative pressor to epinephrine in the treatment of adult shock-resistant Ventricular Fibrillation.
2. Useful in hemodynamic support in vasodilatory shock (e.g. septic shock)

CONTRAINDICATIONS

1. Chronic renal failure
2. Known hypersensitivity to beef or pork proteins

DRUG INTERACTION

1. Vasopressor effect may be increased by concurrent administration of ganglionic blocking agents.

ADMINISTRATION

Adult: [40 units] IV, IO and ET in a single dose, 1 time only for cardiac arrest.

SPECIAL NOTES

1. Potent vasoconstrictor. Increased peripheral vascular resistance may provoke cardiac ischemia and angina.
2. Not recommended for responsive patients with coronary artery disease.
3. Frequently used in refractory “warm shock” secondary to sepsis because it acts as almost a pure vasoconstrictor.

ONDANESTRON

ZOFRAN

CLASS OF DRUG

Antiemetic

INDICATIONS

1. May be used in any patient with nausea and voimiting

CONTRAINDICATIONS

1. Known hypersentivity to drug or class

DRUG INTERACTION

1. Apomorphine (which is used in Parkison disease)

ADMINISTRATION

Adult: 4 Mg IV, IM
Peds 0.1mg/kg IV, IM

SPECIAL NOTES

1. Blocks serotonin receptors in voimiting center of the brain stem.

We hereby approved the Santa Fe Fire Department 2009 Protocols

Barbara Salas, Fire Chief

Nate Unkefer, Medical Director